

УРААНЫЙ ЭТАЛ
70
ЗАТДАСУУНОДАССАМ

A 1908

MONTHLY BULLETIN



OF THE

STATE BOARD OF HEALTH

OF

MASSACHUSETTS:

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614 MB
879 b
190 A

**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING JAN. 5, 1907.

CITIES AND TOWNS.	Population, ¹ Esti- mated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—				
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.
Boston,	609,761	273	56	42	54	24	8	3
Worcester,	132,240	37	12	4	9	1	2	-
Fall River,	106,123	42	21	7	14	3	-	-
Cambridge,	99,745	31	10	9	5	8	-	-
Lowell,	96,380	38	12	7	8	3	2	1
Lynn,	80,743	18	3	2	1	2	-	-
New Bedford,	79,744	34	10	4	11	3	-	-
Springfield,	78,707	24	-	2	2	1	1	-
Lawrence,	76,000	29	15	5	3	1	-	2
Somerville,	72,581	19	3	-	5	-	-	-
Holyoke,	51,730	26	7	4	8	2	-	-
Brockton,	51,289	12	3	1	1	-	-	-
Malden,	39,941	8	3	-	4	2	-	-
Chelsea,	38,659	16	5	2	-	-	-	-
Salem,	38,316	12	1	-	-	-	-	-
Newton,	38,209	12	-	1	2	1	-	-
Haverhill,	38,095	9	1	1	2	1	-	-
Fitchburg,	33,636	9	2	3	1	3	-	-
Everett,	31,274	13	5	-	-	-	-	-
Taunton,	30,967	9	2	1	-	1	-	-
Quincy,	29,944	7	-	-	2	-	-	-
Waltham,	27,493	9	2	2	2	2	-	-
Pittsfield,	26,425	14	-	3	4	2	-	1
Gloucester,	26,011	5	1	-	-	-	-	-
Brookline,	25,003	11	-	2	2	-	1	-
North Adams,	22,150	-	-	-	-	-	-	-
Chicopee,	20,615	8	1	1	3	1	-	-
Northampton,	20,508	9	0	-	2	-	-	-
Medford,	20,294	4	2	2	2	1	-	-
Beverly,	15,794	5	1	-	-	-	-	-
Leominster,	15,139	8	4	2	3	1	1	-
Hyde Park,	15,050	5	1	-	-	-	-	-
Melrose,	14,867	6	1	1	2	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-
Woburn,	14,462	2	-	1	1	1	-	-
Marlborough,	14,263	5	0	1	-	1	-	-
Westfield,	14,169	10	3	-	3	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-
Revere,	13,697	3	1	-	-	-	-	-
Attleborough,	13,294	1	0	1	-	1	-	-
Clinton,	13,105	5	1	-	-	-	-	-
Adams,	13,072	4	-	2	-	-	1	-
Gardner,	12,528	-	-	-	-	-	-	-
Milford,	12,409	4	3	-	-	-	-	-
Watertown,	11,946	2	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-
Weymouth,	11,691	-	-	-	-	-	-	-
Framingham,	11,648	3	1	2	-	1	-	-
Southbridge,	11,416	4	-	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,224,764	805	193	114	155	66	16	5	4
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING JAN. 12, 1907.

CITIES AND TOWNS.	Population Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- flections Dis- eases.	Auto Lung Diseases.	Pulthisis.	Diphtheria.	Typhoid Fever.	Measles
Boston,	609,761	266	55	49	56	22	11	3	1
Worcester,	132,240	40	6	8	6	3	1	1	—
Fall River,	106,123	31	13	6	7	1	—	—	—
Cambridge,	99,745	32	9	3	9	2	1	—	—
Lowell,	99,380	43	6	6	5	5	1	—	—
Lynn,	80,743	27	4	6	1	1	1	—	—
New Bedford,	79,744	25	8	4	5	2	—	1	—
Springfield,	78,707	22	5	1	3	1	—	—	1
Lawrence,	76,000	34	10	13	1	6	1	—	—
Somerville,	72,581	14	1	3	6	2	—	—	—
Holyoke,	51,730	22	10	5	8	2	—	1	—
Brockton,	51,289	17	—	4	1	1	2	—	—
Malden,	39,941	14	4	2	5	2	—	—	—
Chelsea,	38,659	4	1	—	2	3	—	—	—
Salem,	38,316	17	3	3	—	—	—	—	—
Newton,	38,209	7	1	—	—	—	—	—	—
Haverhill,	38,095	11	2	—	4	—	—	—	—
Fitchburg,	33,636	8	3	2	—	1	1	—	—
Everett,	31,274	9	3	—	—	—	—	—	—
Taunton,	30,967	—	—	—	—	—	—	—	—
Quincy,	29,944	13	2	1	3	1	—	—	—
Waltham,	27,493	7	1	1	2	—	—	—	1
Pittsfield,	26,425	—	—	—	—	—	—	—	—
Gloucester,	26,011	6	1	—	2	—	—	—	—
Brookline,	25,003	2	2	—	2	—	—	—	—
North Adams,	22,150	5	2	—	—	—	—	—	—
Chicopee,	20,615	7	4	1	—	—	—	—	—
Northampton,	20,508	11	1	2	1	2	—	—	—
Medford,	20,294	11	—	1	2	1	1	—	—
Beverly,	15,794	4	—	1	—	—	—	1	—
Leominster,	15,139	8	3	5	1	2	—	—	—
Hyde Park,	15,050	3	1	2	—	—	—	—	—
Melrose,	14,867	3	0	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	9	—	—	3	—	—	—	—
Marlborough,	14,263	3	0	—	1	—	—	—	—
Westfield,	14,169	8	2	—	1	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	6	3	2	—	1	—	—	—
Attleborough,	13,294	4	1	—	—	—	—	—	—
Clinton,	13,105	4	1	1	—	1	—	—	—
Adamus,	13,072	7	2	3	—	—	—	1	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	5	—	—	1	—	—	—	—
Watertown,	11,946	2	1	1	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	3	0	—	1	—	—	—	—
Framingham,	11,648	5	—	—	—	—	1	—	—
Southbridge,	11,416	7	1	1	—	—	1	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,201,213	786	172	137	142	68	20	7	2
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WEEK ENDING JAN. 19, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	DEATHS FROM —									
		Reported Deaths in Each.	Deaths under Five Years.	Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria	Typhoid Fever	Malaria		
Boston,	609,761	214	48	33	47	24	—	—	—	—	—
Worcester,	132,240	54	10	4	13	12	—	—	—	—	—
Fall River,	106,123	28	14	5	11	3	—	—	—	—	—
Cambridge,	99,745	24	5	4	5	4	—	—	—	—	—
Lowell,	96,380	38	11	5	9	4	—	—	—	—	—
Lynn,	80,743	24	8	4	7	1	—	—	—	—	—
New Bedford,	79,744	29	8	—	5	5	—	—	—	—	—
Springfield,	78,707	30	2	3	5	4	2	—	—	—	—
Lawrence,	76,000	28	6	5	4	3	—	—	—	—	—
Somerville,	72,581	26	2	2	4	1	1	1	1	—	—
Holyoke,	51,730	28	13	5	7	2	—	—	—	—	—
Brockton,	51,289	9	1	—	—	1	1	1	1	—	—
Malden,	39,941	11	2	2	—	—	—	—	—	—	—
Chelsea,	38,659	16	1	4	1	4	—	—	—	—	—
Salem,	38,316	18	4	3	2	6	—	—	—	—	—
Newton,	38,209	12	3	—	5	3	—	—	—	—	—
Haverhill,	38,095	17	—	3	5	3	—	—	—	—	—
Fitchburg,	33,636	7	1	1	3	1	—	—	—	—	—
Everett,	31,274	8	4	3	—	1	—	—	—	—	—
Taunton,	30,967	21	2	2	6	1	—	—	—	—	—
Quincy,	29,944	9	3	2	1	—	—	—	—	—	—
Waltham,	27,493	10	3	1	—	—	—	—	—	—	—
Pittsfield,	26,425	7	—	—	—	—	—	—	—	—	—
Gloucester,	26,011	4	1	1	—	—	—	—	—	—	—
Brookline,	25,003	8	1	3	—	—	—	—	—	—	—
North Adams,	22,150	1	0	—	1	—	—	—	—	—	—
Chicopee,	20,615	5	0	1	2	1	—	—	—	—	—
Northampton,	20,508	8	1	2	12	12	—	—	—	—	—
Medford,	20,294	10	1	1	3	—	—	—	—	—	—
Beverly,	15,794	5	1	—	—	1	—	—	—	—	—
Leominster,	15,139	2	1	—	—	—	—	—	—	—	—
Hyde Park,	15,050	2	1	—	—	—	—	—	—	—	—
Melrose,	14,867	7	0	—	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—	—
Woburn,	14,462	5	1	3	—	—	—	—	—	—	—
Marlborough,	14,263	2	0	—	—	—	—	—	—	—	—
Westfield,	14,169	5	1	—	—	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—	—
Revere,	13,697	5	—	3	1	2	—	—	—	—	—
Attleborough,	13,294	5	1	—	—	—	—	—	—	—	—
Clinton,	13,105	2	0	1	—	1	—	—	—	—	—
Adams,	13,072	2	—	—	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—	—
Milford,	12,409	2	1	1	—	—	—	—	—	—	—
Watertown,	11,946	1	0	—	—	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	2	0	1	—	—	—	—	—	—	—
Framingham,	11,648	3	—	1	—	—	—	—	—	—	—
Southbridge,	11,416	1	1	—	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,258,605	785	163	111	160	69	9	8			
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WEEK ENDING JAN. 26, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	239	43	36	38	21	4	2	—	—
Worcester,	132,240	39	6	7	6	6	—	1	—	—
Fall River,	106,123	48	25	9	12	3	1	2	—	—
Cambridge,	99,745	27	13	3	7	1	1	2	—	—
Lowell,	96,380	41	14	4	9	2	—	—	—	—
Lynn,	80,743	26	2	3	4	2	—	—	—	—
New Bedford,	79,744	30	11	8	—	7	2	—	—	—
Springfield,	78,707	27	3	2	7	2	—	—	—	—
Lawrence,	76,000	27	13	3	7	1	1	1	—	—
Somerville,	72,581	20	4	1	7	—	—	—	—	—
Holyoke,	51,730	19	8	2	7	2	—	—	—	—
Brockton,	51,289	10	4	3	3	—	—	—	—	—
Malden,	39,941	13	2	4	1	1	1	1	1	—
Chelsea,	38,659	13	—	4	4	4	—	—	—	—
Salem,	38,316	10	1	2	—	2	—	—	—	—
Newton,	38,209	9	3	—	1	—	—	—	—	—
Haverhill,	38,095	7	—	—	2	—	—	—	—	—
Fitchburg,	33,636	—	—	—	—	—	—	—	—	—
Everett,	31,274	13	2	1	—	—	—	—	—	—
Taunton,	30,967	13	0	1	2	1	1	1	—	—
Quincy,	29,944	9	5	—	—	—	—	—	—	—
Waltham,	27,493	7	2	1	1	1	1	1	—	—
Pittsfield,	26,425	10	—	—	—	—	—	—	—	—
Gloucester,	26,011	2	—	—	—	—	—	—	—	—
Brookline,	25,003	—	—	—	—	—	—	—	—	—
North Adams,	22,150	4	0	—	—	—	—	—	—	—
Chicopee,	20,615	7	6	1	4	—	—	—	—	—
Northampton,	20,508	10	0	—	4	—	—	—	—	—
Medford,	20,294	1	—	3	2	3	—	—	—	—
Beverly,	15,794	6	—	—	—	—	—	—	—	—
Leominster,	15,139	3	1	1	1	—	—	—	—	—
Hyde Park,	15,050	4	—	1	1	—	—	—	—	—
Melrose,	14,867	4	2	—	1	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	5	2	1	3	—	—	—	—	—
Marlborough,	14,263	3	0	—	1	—	—	—	—	—
Westfield,	14,169	7	3	1	2	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	1	0	—	1	—	—	—	—	—
Attleborough,	13,294	3	—	—	—	1	—	—	—	—
Clinton,	13,105	8	2	—	—	—	—	—	—	—
Adams,	13,072	6	—	1	1	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	5	—	2	—	—	1	—	—	—
Watertown,	11,946	4	1	—	1	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	4	0	—	—	—	—	—	—	—
Framingham,	11,648	3	—	—	—	1	—	—	—	—
Southbridge,	11,416	4	4	—	—	1	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,199,696	751	182	100	144	61	9	3	—
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WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS DISEASES.

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN ABOVE TABLES DURING THE WEEKS OF JAN. 5, 12, 19 AND 26, 1907.

DISEASE.	Place.	WEEK ENDING —			
		JAN. 5.	JAN. 12.	JAN. 19.	JAN. 26.
Cerebro-spinal meningitis,	Boston, Brockton, Lynn, Medford, Milford, Hyde Park, Quincy, Worcester,	— 1 — 1 — — — 1	5 1 3 — — — — 2	— — — — — — 1 —	2 — — — — — — —
Scarlet fever,	Boston, Brookline, Cambridge, Everett, Malden, Quincy, Somerville, Watertown,	2 1 — — — — — —	— — — — — — — 1	1 — — 1 — 1 — —	3 — 1 1 1 — — —
Erysipelas,	Boston, Lynn, Revere, Somerville, Worcester,	2 — — — —	2 — — 1 —	— — 1 — —	— 1 — — 1
Whooping cough,	Boston, Cambridge, Chicopee, Fall River, Framingham, Holyoke, Lawrence, Lynn, Melrose, Milford, New Bedford, Revere, Salem, Woburn, Worcester,	1 1 — 1 1 1 1 — 1 — — — — — — —	— — 1 1 — 2 2 — — — — — — — — —	1 — — — — — — 1 — — — — — — — —	1 — 1 — — — — — — — — — — — — —
Influenza,	Adams, Brookline,	— —	— —	1 3	— —
Hydrophobia,	Westfield,	—	—	—	1

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF JAN. 5, 12, 19 AND 26, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

		WEEK ENDING —			
		Jan. 5.	Jan. 12.	Jan. 19.	Jan. 26.
Diphtheria,		311	250	246	206
Measles,		120	79	33	72
Scarlet fever,		201	655	378	192
Typhoid fever,		52	17	29	14
Tuberculosis,		141	64	90	59
Cerebro-spinal meningitis,		5	7	6	2
Hydrophobia,		5	—	—	1
Erysipelas,		1	—	—	—
Whooping cough,		—	6	—	4
Chicken pox,		—	1	1	—

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of January, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Milk,	92	118	210	Hamburg steak, .	2	3	5
Butter,	2	—	2	Head cheese, .	2	—	2
Cider,	1	—	1	Lambs' tongues, .	2	—	2
Cocoa,	1	—	1	Mince meat, .	4	3	7
Coffee,	1	—	1	Sausages,	26	—	26
Condensed milk, .	2	—	2	Molasses,	4	—	4
Cream,	1	—	1	Oysters,	3	—	3
Diabetic flour, .	—	1	1	Peanut butter, .	1	—	1
Extracts (flavoring),	8	4	12	Pastry,	1	—	1
Honey,	5	—	5	Pickles,	5	1	6
Jams and preserves,	5	1	6	Red currant juice, .	1	—	1
Lard,	6	—	6	Salad dressing, .	2	—	2
Malt extract,	2	—	2	Spices,	24	1	25
Maple sugar,	—	1	1	Sugar,	2	—	2
Maple syrup,	26	11	37	Table sauce,	3	1	4
Meat extract,	1	—	1	Vinegar,	4	—	4
Meats (canned),	2	—	2	Drugs,	96	37	133
				Total,	337	182	519

The samples of drugs found to be adulterated were: extractum glycyrrhizæ, fluid extractum zingeberis, liquor calsio, spiritus camphoræ, spiritus frumenti, tinctura iodi, and twenty different proprietary preparations.

The cities and towns in which samples were collected were: Attleborough, Boston, Brockton, Brookline, Cambridge, Chelsea, Foxborough, Gardner, Gloucester, Lawrence, Lowell, Milford, Newton, North Attleborough, Rockland, Pittsfield, Salem, Somerville, Springfield, Watertown, Whitman and Woburn.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Forty-eight convictions were secured during the month of January, 1907, for selling adulterated food and drugs, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Henry Siegel Company, . . .	Boston, . . .	Apple butter.
2	Henry Siegel Company, . . .	Boston, . . .	Apple butter.
3	Henry Siegel Company, . . .	Boston, . . .	Buckwheat flour.
4	Henry Siegel Company, . . .	Boston, . . .	Chili sauce.
5	Henry Siegel Company, . . .	Boston, . . .	Chili sauce.
6	Charles H. Cass, . . .	Boston, . . .	Cider.
7	Frank C. Fox, . . .	Boston, . . .	Cider.
8	Wm. L. Hall (Dodge-Spear Company).	Boston, . . .	Cider.
9	James Kinsley, . . .	West Acton, . . .	Cider.
10	David J. Marshall, . . .	Boston, . . .	Cider.
11	Delmont E. Mowry, . . .	Milford, . . .	Cider.
12	John T. Powers, . . .	Boston, . . .	Cider.
13	Daniel J. Weston, . . .	Chelsea, . . .	Coca wine.
14	Edwin H. Hancock, . . .	No. Attleborough,	Devilled ham.
15	Harry P. Hinckley (Armour & Co.).	Boston (Charlestown).	Devilled ham.
16	Harry P. Hinckley (Armour & Co.).	Boston (Charlestown).	Devilled tongue.
17	Arthur H. Atwood, . . .	Boston, . . .	Hamburg steak.
18	Martin J. Sherry (Ginter Grocery Company).	Boston, . . .	Hamburg steak.
19	Henry Siegel Company, . . .	Boston, . . .	Jellied pigs' feet.
20	Nelson C. Clarmont, . . .	Lowell, . . .	Milk (total solids, 11.05).
21	Timothy P. Cronan, . . .	Milford, . . .	Milk (total solids, 10.92).
22	Timothy P. Cronan, . . .	Milford, . . .	Milk (20 per cent. water).Appealed.
23	James M. Fletcher, . . .	Milford, . . .	Milk (total solids, 10.76).
24	James M. Fletcher, . . .	Milford, . . .	Milk (20 per cent. water).Appealed.
25	Charles E. Brown, . . .	Gardner, . . .	Milk (total solids, 11.63).15 per cent. water).Appealed.
26	Eudore Croteau, . . .	Lowell, . . .	Milk (total solids, 10.81).
27	Joseph A. Ferron, . . .	Lowell, . . .	Milk (total solids, 11.20).
28	Joseph A. Ferron, . . .	Lowell, . . .	Milk (watered).

No.	Name of Defendant.	Place.	Character of Article sold.
29	Joseph A. Ferron, . . .	Lowell, . . .	Milk (watered).
30	Ernest Rice, . . .	Salem, . . .	Milk (total solids, 11.66).
31	Brockton Public Market Corporation.	Brockton, . . .	Mince meat.
32	Frederick W. Forbush, . . .	Salem, . . .	Mince meat.
33	Charles H. Gretter, . . .	Boston (Charlestown).	Mince meat.
34	Edwin C. Johnson, . . .	Boston, . . .	Mince meat.
35	Harry W. Knights, . . .	Boston, . . .	Mince meat.
36	Walter Mitchell, . . .	Boston, . . .	Mince meat.
37	Stanislaus A. Pfeffer, . . .	South Boston, . .	Mince meat.
38	Joseph G. McLeod, . . .	Boston, . . .	Mince meat.
39	Wm. H. Smith (Manhattan Market Company).	Cambridge, . . .	Mince meat.
40	Charles H. Knott, . . .	South Boston, . .	Olive oil.
41	Henry Siegel Company, . . .	Boston, . . .	Sweet piccalilli.
42	Henry Siegel Company, . . .	Boston, . . .	Sweet pickles.
43	Angelo Lampronlos, . . .	Boston, . . .	Spirits of camphor.
44	Henry Siegel Company, . . .	Boston, . . .	Tomato catsup.
45	Henry Siegel Company, . . .	Boston, . . .	Tomato catsup.
46	Harry P. Hinckley (Armour & Co.).	Boston (Charlestown).	Vienna sausage.
47	Frank Sundan, . . .	Gardner, . . .	Vinegar.
48	Frederick M. Gardner, . . .	Boston, . . .	Tincture iodine.

Fines imposed, \$1,565.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR JANUARY, 1907.

Number of Sample.	Character of Sample.	Brand, or Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
7263 N	Milk,	E. H. Brown, Springfield, Joseph H. Ferrar, Lowell, Martin J. Whalen, Gloucester,	10.31 per cent. solids; contained added water. 11.29 per cent. solids; contained added water. 9.88 per cent. solids; contained added water, and colored with annatto.
4874	Milk,	.	Contained no lemon oil.
4984	Milk,	.	Contained 9 per cent. lemon oil.
A 244	Lemon extract, Lemon extract, “Rival Brand Syrup,”	Colonial Perfume and Toilet Company, Detroit, Lowell Pharmacy, Lowell, Haskell Adams & Co.,	20 per cent. maple syrup, 80 per cent. cane sugar syrup; erroneous formula.
4921	.	.	20 per cent. maple syrup, 80 per cent. cane sugar syrup; erroneous formula.
3152 M	.	.	20 per cent. maple syrup, 80 per cent. cane sugar syrup; erroneous formula.
3122 M	“Peerless Brand Ver- mont Syrup,”	M. S. Ayer Company, Boston,	35 per cent. maple syrup; 65 per cent. cane sugar syrup; erroneous formula.
6003	“Gold Leaf Brand Syrup,”	Huntington Maple Syrup and Sugar Company, Prov- idence.	75 per cent. maple syrup, 25 per cent. cane sugar syrup.
7465 N	“Gilt Edge Pure Ver- mont Maple Syrup.”	J. G. Turner, Medford,	Preserved with benzoic acid.
7483	Sweet gherkins,	C. K. Sherwood, New York, Twitcher Champlin Company, Boston and Portland,	Admixture of wild mace.
7073 N	Mace,	.	.

INSPECTION OF DAIRIES.

During the month of January, 1907, 287 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Acushnet,	5	—	—	5	—
Chicopee,	27	14	51.85	13	48.15
Dartmouth,	193	35	18.13	158	81.87
Fairhaven,	4	1	25.00	3	75.00
Freetown,	10	1	10.00	9	90.00
New Bedford,	45	6	13.33	39	86.67
Westport,	3	—	—	3	—

Total number of dairies examined,	. . . . .	287
Number found to be free from objectionable conditions,	. . . . .	57
Number to which letters were sent,	. . . . .	230
Total number of conditions to which attention was called,	. . . . .	975
Percentage of dairies which passed inspection,	. . . . .	19.86

The names of the owners of the dairies found to be worthy of commendation follow:—

Chicopee.

Baker, W. J.	Elmer, E. E.	Smyth, Joel M.
Chapin, George.	Gross, Henry.	Sturtevant, D.
Chapin, George H., Sr.	Helscher, Christian.	Tanguay, Phileas.
Coddling, C. W.	Locke, Charles.	Walker, E. L.
Crehore, C. W.	Shaw, E. L.	

Dartmouth.

Allen, W. W.	Faunce, David C.	Mosher, Walter F.
Anthony, Daniel A.	Faunce, Silas.	Palmer, E. C.
Bouccier, George.	Fratus, Manuel.	Perry, A. D.
Breahart, John.	Harding, Thomas.	Plant, M. (Ryder Farm).
Brown, William.	Howard, William.	Rogers, (Mrs.) Adelia.
Clark, A. F.	Howland, George.	Sylvia, Thomas.
Collins, J. M.	Jones, (Mrs.) E. C.	Thibeault, Peter.
Cottle, Benjamin F.	King, A. H.	Tucker, Joseph F.
Cushman, C. A.	Kirby & Hicks.	Vieira, John.
Davis, M. M.	Littlefield, Charles E.	Wing, Herbert.
Eddy, James A.	Maxfield, William.	Wordell, W. R.
Faunce, A. B.	Mosher, P. J.	

Fairhaven.

Dana, (Mrs.) E. A.

Freelown.

Washburn, H. E.

New Bedford.

Allen, Henry.

Brownell, Charles T.

Coggeshall, William A.

Mitchell, David H.

Spooner, Edward.

Oliver, Joseph.

PURE MILK AND INFANT MORTALITY.

A mother having with tears told Dr. Osler that it had pleased Providence to take her baby from her, he responded that it was unfair to blame Providence, who had had nothing at all to do with the matter, and said, "It was bad milk that killed your baby." Of late years the mortality of infancy and early childhood has been decidedly diminished, at least in New York. In that city in 1881 the death rate from diarrhoeal diseases among children under five was 33.3 to the 1,000; in 1905 it was 14.9 to the 1,000. In the latter year, during the three months following June 10, the mortality from the same cause and under the same age limit was 4,086; this year in the corresponding period the deaths were 3,662. Unquestionably we must thank "cleaner milk" for the saving in 1905 of many, if not all, of these 20 infant lives out of 1,000 that would have been lost in 1881, and of the 10 per cent. reduction of infant mortality in the heated term of 1906 over that of the same period in 1905. And in this estimate we must not fail to consider the enormous amount of illness and distress not ending fatally that was obviated by the use of wholesome milk. Practically all diarrhoeal diseases, so fatal as they are to infancy, are caused by impure milk. Absolutely pure, clean milk is no doubt unattainable, especially for the very poor. These qualities, however, are being decidedly approximated, thanks to health department and medical society activities, to the education of the poor in rational methods of infant feeding, and to the combating of inordinate greed on the part of some dealers. We say "some" dealers; for human nature among them, as in all other walks of life, is well intentioned. In most cases all that has been necessary has been to prove to the dealers that clean milk pays better than dirty milk; and the few who are unprincipled are finding that it does not pay at all when any sunrise in the metropolis there are thirty-one health inspectors "pouring into the sewers death and disease that a few years ago would have been sold and used as children's food." (Journal of the American Medical Association, Nov. 24, 1906.)

**REVISED LIST OF PROPRIETARY MEDICINES UNSALABLE
AT RETAIL.**

Following are the proprietary medicines included in the latest advertisements of the Board as unsalable at retail, on account of noncompliance with the provisions of chapter 386 of the Acts of 1906:—

Preparations containing Cocaine.

- Dr. Birney's Catarrhal Powder.
- Crown Catarrhal Powder.
- Dr. Agnew's Catarrhal Powder.
- Standard Catarrh Powder.
- Instant Catarrh Relief; Instant Cold Relief.
- Dr. Coles Catarrh Cure.
- Pretzinger's Catarrh Balm.
- Allenbury's Throat Pastilles, No. 9.
- Coca and Tolu Cough Drops.
- Specific for Asthma, Hay Fever and all Catarrhal Diseases of the Respiratory Organs. Nathan Tucker, M.D., Mt. Gilead, O.
- Vin Mariani.
- Dr. Earl's Coca Wine.
- Epstein's Wine of Coca.
- Green's Coca Wine.
- Mattison's Coca Wine.
- Metcalf's Coca Wine.
- Peruvian Coca Wine.
- Peruvian Wine of Coca.

Preparation containing an Excessive Amount of Morphine.

- Carney Common Sense Opiate Cure.

The following preparations, which contain cocaine, may be sold on prescription only:—

- Coca Wine, Wine of Coca, not bearing a proprietary label.
- Compressed Pill, Creosote Comp.
- Compressed Pill, Throat, Mentholated.
- Compressed Pill, Nausea.
- Compressed Voice Tablets.
- Anti-vomiting Tablets.
- Compressed Tablets, Creosote Comp.
- Throat Tablets.

FOOD AND DRUG LAWS OF MASSACHUSETTS.

GENERAL LAW.

REVISED LAWS, CHAPTER 75.

Sale of Adulterated Food, etc., forbidden.

SECTION 16. No person shall manufacture, offer for sale or sell, within this commonwealth, any drug or article of food which is adulterated within the meaning of section eighteen; but no employee, other than a manager or superintendent, shall be punished for a violation of this section unless such violation was intentional on the part of the said employee.

Drugs and Food defined.

SECTION 17. The term "drug," as used in sections sixteen to twenty-seven, inclusive, shall include all medicines for internal or external use, antiseptics, disinfectants and cosmetics. The term "food," as used therein shall include all articles, simple, mixed or compound, used in food or drink by man.

Adulteration of Drugs and Food defined.

SECTION 18. A drug shall be deemed to be adulterated: 1. If, when sold under or by a name recognized in the United States pharmacopœia, it differs from the standard of strength, quality or purity prescribed therein, unless the order therefor requires an article inferior to such standard or unless such difference is made known or so appears to the purchaser at the time of the sale. 2. If, when sold under or by a name not recognized in the United States pharmacopœia but which is found in some other pharmacopœia or other standard work on *materia medica*, it differs materially from the standard of strength, quality or purity prescribed in such work. 3. If its strength, quality or purity falls below the professed standard under which it is sold.

Food shall be deemed to be adulterated: 1. If any substance has been mixed with it so as to reduce, depreciate or injuriously affect its quality, strength or purity. 2. If an inferior or cheaper substance has been substituted for it wholly or in part. 3. If any valuable or necessary constituents or ingredients have been wholly or in part taken from it. 4. If it is in imitation of or is sold under the name of another article. 5. If it consists wholly or in part of a diseased, decomposed, putrid, tainted or rotten animal or vegetable substance or article, whether manufactured or not, or in case of milk, if it is produced by a diseased animal. 6. If it is colored, coated, polished or powdered in such a manner as to conceal its damaged or inferior condition, or if by any means it is made to appear better or of greater value than it is. 7. If it contains any added substance or ingredient which is poisonous or injurious to health. 8. If it contains any added antiseptic or preservative substance, except common table salt, saltpetre, cane sugar, alcohol, vinegar, spices, or, in smoked food.

the natural products of the smoking process; but the provisions of this definition shall not apply to any such article if it bears a label on which the presence and the percentage of every such antiseptic or preservative substance are clearly indicated, nor shall it apply to such portions of suitable preservative substances as are used as a surface application for preserving dried fish or meat, or as exist in animal or vegetable tissues as a natural component thereof, but it shall apply to additional quantities. The provisions of this and the two preceding sections relative to food shall not apply to mixtures or compounds not injurious to health and which are recognized as ordinary articles or ingredients of articles of food, if every package sold or offered for sale is distinctly labelled as a mixture or compound with the name and per cent of each ingredient therein.

Ingredients of Food to be stated, except, etc.

SECTION 19. If a statement of any of the ingredients of an article of food or drink or of an article entering into food or drink is required by law to be stated upon the label of such article, such statement and the name and address of the manufacturer or vendor of the article shall be distinctly and conspicuously printed on the label in straight, parallel lines of plain, uncondensed, legible type, well spaced on a plain ground. The statement of ingredients shall be clearly separated from and not interspersed or confused with other matter, shall specify every such ingredient by its ordinary name, and shall be in the English language. The letters of said type shall be not less than one-twelfth of an inch long, and shall be larger than those of any other printed matter on the label or package, except the name of the compound or chief article enclosed therein which may be in larger type. The required label shall be firmly attached to or printed on the exterior of the package or envelope of the said article, on the top or side thereof and in plain sight. But the state board of health may in writing approve specific labels not strictly in accordance with the above provisions, if it is of opinion that the information required by law is set forth thereon clearly enough for the reasonable protection of the purchaser. Goods labelled in violation of the provisions of this section shall be subject to the provisions of law relative to adulteration of food which is unlabelled.

Samples for Analysis.

SECTION 20. Whoever offers or exposes for sale or delivers to a purchaser any drug or article of food shall, upon application of an inspector, analyst or other officer or agent of the state board of health and upon tender to him of the value thereof, furnish a sample sufficient for the analysis of any such drug or article of food which is in his possession.

Portion of Sample to be reserved.

SECTION 21. Before such sample is analyzed, a portion thereof shall be reserved and sealed by the analyst; and upon a complaint against any person, such reserved portion shall, upon application, be delivered to the defendant or his attorney.

Grade of Canned Food to be marked.

SECTION 22. Canned articles of food shall not be offered for sale unless they bear a mark to indicate the grade or quality thereof and the name and address of the person who packed or who sells them.

Marking of Soaked Canned Goods.

SECTION 23. All canned articles of food which have been prepared from dried products and have been soaked before canning shall be plainly marked by an adhesive label having on its face the word "*soaked*" in letters of legible type not smaller than two line pica. All cans, jugs and other packages containing maple syrup or molasses shall be plainly marked by an adhesive label having on its face the name and address of the person who made and prepared the same with the name and quality of the ingredients of the goods in letters of the size and description aforesaid.

Penalties for False Labelling, selling Adulterated Food or Drugs, selling Misbranded Foods, etc.

SECTION 24. Whoever falsely stamps or labels any cans, jars or other packages containing fruit or food of any kind, or knowingly permits such stamping or labelling, or, except as hereinafter provided, violates any of the provisions of sections sixteen to twenty-seven, inclusive, shall be punished by a fine of not less than twenty-five nor more than five hundred dollars; and whoever sells such goods so falsely stamped or labelled shall be punished by a fine of not less than ten nor more than one hundred dollars.

Penalty for "fraudulently" adulterating Food.

SECTION 25. Whoever, for the purpose of sale, fraudulently adulterates food with any substance injurious to health, or knowingly barters, gives away, sells or has in his possession with intent to sell any substance intended for food which has been adulterated with any substance injurious to health, shall be punished by a fine of not more than three hundred dollars or by imprisonment for not more than one year; and the articles so adulterated shall be forfeited and destroyed under the direction of the court.

Penalty for "fraudulently" adulterating Drugs or Medicines.

SECTION 26. Whoever, for the purpose of sale, fraudulently adulterates any drug or medicine, or sells any fraudulently adulterated drug or medicine, knowing it to be adulterated, shall be punished by a fine of not more than four hundred dollars or by imprisonment for not more than one year; and such adulterated drugs and medicines shall be forfeited and destroyed under the direction of the court.

Prosecutions as to Drugs limited.

SECTION 27. If the standard of strength or purity of any drug has been raised since the issue of the last edition of the United States pharmacopœia, no prosecution relative to it shall be maintained until such change of standard has been published throughout the commonwealth.

PATENT MEDICINE LAW.

ACTS OF 1906, CHAPTER 386.

AN ACT RELATIVE TO THE LABELLING OF CERTAIN PATENT OR PROPRIETARY DRUGS AND FOODS.

SECTION 1. Upon every package, bottle or other receptacle holding any proprietary or patent medicine, or any proprietary or patent food preparation, which contains alcohol to an amount in excess of the amount shown to be necessary by the United States Pharmacopœia or the National Formulary as a solvent or preservative of the active constituents of the drugs contained therein, shall be marked or inscribed a statement of the percentage of alcohol by volume contained therein; and the provisions of section nineteen of chapter seventy-five of the Revised Laws shall apply to the manner and form in which such statements shall be marked or inscribed.

SECTION 2. Every package, bottle or other receptacle holding any proprietary or patent medicine or any proprietary or patent food preparation shall bear a label containing a statement of the quantity of any opium, morphine, heroin or chloral-hydrate contained therein, provided that the package contains more than two grains of opium, or more than one fourth grain of morphine, or more than one sixteenth grain of heroin, or more than eight grains of chloral-hydrate in one fluid ounce, or, if a solid preparation, in one avoirdupois ounce; and the provisions of section nineteen of chapter seventy-five of the Revised Laws shall apply to the manner and form in which such statements shall be marked or inscribed.

SECTION 3. It shall be unlawful for any person to sell, or to expose or offer for sale, or to give or exchange, any patent or proprietary medicine or article containing cocaine or any of its salts, or alpha or beta eucaine or any synthetic substitute of the aforesaid.

SECTION 4. It shall be unlawful for any person to sell, or to expose or offer for sale, or to give or exchange any cocaine or alpha or beta eucaine or any synthetic substitute of the aforesaid, or any preparation containing the same, or any salts or compounds thereof, except upon the written prescription of a physician, dentist or veterinary surgeon registered under the laws of the Commonwealth; the original of which prescription shall be retained by the druggist filling the same and shall not again be filled.

SECTION 5. The provisions of sections three and four shall not apply to sales at wholesale made to retail druggists or dental depots nor to sales made to physicians, dentists or regularly incorporated hospitals.

SECTION 6. Whoever manufactures, sells or offers for sale any medicine or food preparation in violation of the provisions of this act shall be punished by a fine of not less than five nor more than one hundred dollars. It shall be the duty of the state board of health to cause the prosecution of all persons violating the provisions of this act; but no prosecution shall be brought for the sale at retail, or for the gift or exchange of any patent or proprietary medicine or food preparation containing any drug or preparation the sale of which is prohibited or restricted as aforesaid, unless the said board has, prior to such sale, gift or exchange, given public notice in such trade journals or newspapers as it may select that the gift, exchange or sale at retail of the said medicine or food preparation would be contrary to law.

SECTION 7. This act shall take effect on the first day of September in the year nineteen hundred and six.

BUTTER, CHEESE, LARD AND OLEOMARGARINE.

REVISED LAWS, CHAPTER 56.

Definition of "Oleomargarine," "Butter" and "Cheese."

SECTION 35. For the purposes of sections thirty-six to forty-seven, inclusive, the word "oleomargarine" shall, in addition to its ordinary meaning, include "butterine", "imitation butter" and any article, substance or compound made in imitation or semblance of butter or as a substitute for butter and not made exclusively and wholly of milk or cream, or containing any fats, oils or grease not produced from milk or cream, and for the purposes of sections thirty-seven, thirty-eight and forty-one to forty-seven, inclusive, the terms "butter" and "cheese" shall mean the products which are usually known by these names and are manufactured exclusively from milk or cream, with salt and rennet, and with or without coloring matter.

Imitation Butter to be marked.

SECTION 36. Whoever, himself or by his agent, sells, exposes for sale or has in his possession with intent to sell, oleomargarine shall have the word "oleomargarine" or "butterine" stamped, labelled or marked, so that said word cannot be easily defaced, upon the top, side and bottom of every tub, firkin, box or package containing any of said oleomargarine. Whoever, himself or by his agent, exposes or offers for sale oleomargarine not in the original package shall attach thereto in a conspicuous place a label bearing the words "imitation butter", or the word "oleomargarine" or "butterine". In retail sales of oleomargarine not in the original package the seller shall attach to each package so sold, and shall deliver therewith to the purchaser, a label or wrapper bearing in a conspicuous place upon the outside of the package the words "imitation butter", or the word "oleomargarine" or "butterine". All said stamps, labels and marks shall be in printed letters in a straight line of plain, uncondensed gothic type, not less than one-half inch in length.

Imitation Cheese to be marked.

SECTION 37. Whoever, himself or by his agent, sells, exposes for sale or has in his possession with intent to sell, any article, substance or compound, made in imitation or semblance of cheese or as a substitute for cheese, and not made exclusively and wholly of milk or cream, or containing any fats, oils or grease not produced from milk or cream, shall have the words "*imitation cheese*" stamped, labelled or marked in printed letters of plain, uncondensed gothic type, not less than one inch in length, so that said words cannot be easily defaced, upon the side of every cheese-cloth or band around the same, and upon the top and side of every tub, firkin, box or package containing any of said article, substance or compound. In retail sales of any of said article, substance or compound not in the original packages, the seller shall attach to each package so sold at retail, and shall deliver therewith to the purchaser, a label or wrapper bearing in a conspicuous place upon the outside of the package the words "*imitation cheese*", in printed letters of plain uncondensed gothic type, not less than one-half inch in length.

Penalty for Violation of Two Preceding Sections.

SECTION 38. Whoever sells, exposes for sale or has in his possession with intent to sell, any article, substance or compound made in imitation or semblance of butter or cheese or as a substitute for butter or cheese, except as provided in the two preceding sections, and whoever, with intent to deceive, defaces, erases, cancels or removes any mark, stamp, brand, label or wrapper provided for in said sections, or in any manner shall falsely label, stamp or mark any box, tub, article or package marked, stamped or labelled as aforesaid, or whoever, himself or by his agent, sells, exposes for sale, or has in his possession with intent to sell, oleomargarine, contained in any box, tub, article or package, marked or labelled with the word "*dairy*", or the word "*creamy*", or the name of any breed of dairy cattle, shall for the first offence forfeit one hundred dollars, and for each subsequent offence two hundred dollars to the use of the city or town in which the offence was committed.

Conveyance of Oleomargarine for Sale.

SECTION 39. Every person who conveys oleomargarine in carriages or otherwise, for the purpose of selling the same in any city or town, shall annually, in May, be licensed by an inspector of milk of such city or town to sell the same within the limits thereof, and shall pay therefor to such inspector fifty cents to the use of the city or town. The inspector shall pay over monthly to the treasurer of such city or town all money collected by him. In towns in which there is no inspector of milk, licenses shall be issued by the town clerk. Licenses shall be issued only in the names of the owners of carriages or other vehicles, and shall be conclusive evidence of ownership. No license shall be sold, assigned or transferred. Each license shall be numbered and shall state the name, residence, place of business, number of carriages or

other vehicles used, and the name and residence of every driver or other person engaged in carrying oleomargarine. Each licensee shall before engaging in the sale of oleomargarine cause his name, the number of his license and his place of business to be legibly placed on each outer side of all carriages or vehicles used by him in the conveyance and sale thereof, in gothic letters not less than one inch in length, and he shall report to the inspector any change of driver or other person employed by him which may occur during the term of his license. Whoever, without being first licensed, sells oleomargarine, or exposes or offers it for sale from carriages or other vehicles or has it in his custody or possession with intent so to sell, and whoever violates any of the provisions of this section, shall, for a first offence, be punished by a fine of not less than thirty nor more than one hundred dollars, and, for a second offence, by a fine of not less than fifty nor more than three hundred dollars.

Registration of Sellers of Oleomargarine.

SECTION 40. Every person, before selling or offering for sale oleomargarine in a store, booth, stand or market-place in a city or in a town in which an inspector of milk is appointed, shall annually, in May, register in the books of such inspector, or if there is no inspector then in the books of the town clerk, his name and proposed place of sale, and shall pay fifty cents for the registering to the use of such city or town. Whoever neglects so to register shall be punished by a fine of not more than twenty dollars.

Manufacture, Possession or Sale of Imitation Butter prohibited.

SECTION 41. Whoever, himself or by his agent or servant, renders, manufactures, sells, offers for sale, exposes for sale, takes orders for the future delivery of, has in his possession, keeps in storage, distributes, delivers, transfers or conveys with intent to sell, within the commonwealth, any article, product or compound made wholly or partly out of any fat, oil or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same, shall be punished by a fine of not less than one hundred nor more than five hundred dollars or by imprisonment for not more than one year: but the provisions of this section shall not prohibit the manufacture or sale of oleomargarine in a separate and distinct form and in such manner as will inform the consumer of its real character, free from any coloration or ingredient which causes it to look like butter.

Complaints for Violation instituted by Inspectors of Milk.

SECTION 42. Inspectors of milk shall, if they have reasonable cause to believe that the provisions of sections thirty-six to forty-seven, inclusive, have been violated, and on the information of any person who lays before them satisfactory evidence by which to sustain such complaints, institute complaints for violations of said sections. They may enter all places in which butter, cheese or imitations thereof are stored or kept for sale, and shall take

samples of suspected butter, cheese or imitations thereof and cause them to be analyzed or otherwise satisfactorily tested, and shall record and preserve the result of such analysis or test as evidence. Before commencing the analysis of any sample in proceedings under sections thirty-six, thirty-seven and thirty-eight, the analyst shall reserve and seal a portion of the sample, and, upon a complaint against any person, such reserved portion of the sample alleged to be adulterated shall, upon application, be delivered to the defendant or his attorney. The expense of such analysis or test, not exceeding twenty dollars in any one case, may be included in the expenses of such prosecutions. Whoever hinders, obstructs or in any way interferes with an inspector or his agent in the performance of his duty under the provisions of this section shall be punished by a fine of fifty dollars for the first offence and of one hundred dollars for each subsequent offence.

Fraud in Sale of Butter.

SECTION 43. Whoever, himself or by his agent, sells or offers for sale to any person who asks, sends or inquires for butter, any oleomargarine, shall be punished by a fine of one hundred dollars for each offence.

Marks required on Tubs, etc.

SECTION 44. Whoever exposes for sale oleomargarine which is not marked and distinguished by all the marks, words and stamps required by law, and does not have upon the exposed contents of every open tub, package or parcel thereof a conspicuous placard with the word "*oleomargarine*" printed thereon in plain, uncondensed gothic letters, not less than one inch long, shall be punished by a fine of one hundred dollars for each offence.

Placard required in Store.

SECTION 45. Whoever sells oleomargarine from any dwelling, store, office or public mart which does not have conspicuously posted thereon the placard or sign, in letters not less than four inches in length, "*oleomargarine sold here*", or "*butterine sold here*", approved by the dairy bureau, shall be punished by a fine of one hundred dollars for the first offence and one hundred dollars for each day's neglect after conviction for the first offence.

Placard required on Cart.

SECTION 46. Whoever, himself or by his agent, peddles, sells, solicits orders for the future delivery of or delivers from any cart, wagon or other vehicle, oleomargarine, not having on both sides of said cart, wagon or other vehicle the placard in uncondensed gothic letters, not less than three inches in length, "*licensed to sell oleomargarine*" shall be punished by a fine of one hundred dollars or by imprisonment for thirty days for each offence.

Serving Oleomargarine at Hotels.

SECTION 47. Whoever furnishes oleomargarine or causes it to be furnished in any hotel, restaurant or boarding house or at any lunch counter, to a guest or patron thereof, instead of butter, without notifying said guest or patron that the substance so furnished is not butter shall be punished by a fine of not less than ten nor more than fifty dollars for each offence.

Sale of Renovated Butter.

SECTION 48. Whoever, himself or by his agent, or as the servant or agent of another person, sells, exposes for sale or has in his custody or possession with intent to sell, any article or compound which is produced by taking original packing stock or other butter, or both, melting the same, so that the butter fat can be drawn off, mixing the said butter fat with skimmed milk, or milk, or cream, or other milk product, and rechurning the said mixture, or by any similar process, and is commonly known as process butter, shall have the words, "*renovated butter*" conspicuously stamped, labelled or marked, in a straight line in printed letters, not less than one-half inch in length, of plain, uncondensed gothic type, so that said words cannot be easily defaced, upon the top, side and bottom of every tub, firkin, box or package containing said article or compound. The seller at retail of said article or compound, which is not in the original package, shall himself or by his agent, attach to each package so sold and deliver therewith to the purchaser a label or wrapper bearing in a conspicuous place upon the outside of the package the words "*renovated butter*" in printed letters not less than one-half inch in length in a straight line of plain uncondensed gothic type. Whoever violates any provision of this section shall for a first offence be punished by a fine of not less than twenty-five nor more than one hundred dollars, for a second offence by a fine of not less than one hundred nor more than three hundred dollars, and for a subsequent offence by a fine of five hundred dollars or by imprisonment for not less than sixty nor more than ninety days.

Wrappers of Adulterated Lard to be marked.

SECTION 49. No person shall sell, deliver, prepare, put up, expose or offer for sale any lard, or any article intended for use as lard, which contains any ingredient except the pure fat of swine, in any tierce, bucket, pail or other vessel or wrapper, or under any label, bearing the words "*pure*", "*refined*", "*family*", or either of them, alone or in combination with other words; but every vessel, wrapper or label in or under which such article is sold, delivered, prepared, put up or exposed for sale by him shall bear on the top or outer side thereof, in letters not less than one-half inch in length and plainly exposed to view, the words "*compound lard*". Whoever violates the provisions of this section shall be punished by a fine of not more than fifty dollars for the first offence or of not more than one hundred dollars for a subsequent offence.

Disposition of Fines.

SECTION 50. All fines recovered under the provisions of sections forty-three, forty-four, forty-five, forty-six and forty-seven shall be payable to the commonwealth.

MILK.**REVISED LAWS, CHAPTER 56.***Appointment of Inspectors of Milk.*

SECTION 51. The mayor and aldermen of cities shall, and the selectmen of towns may, annually appoint one or more inspectors of milk for their respective cities and towns. Each inspector shall be sworn before entering upon the performance of his official duties and shall publish a notice of his appointment for two weeks in a newspaper published in his city or town, if any; otherwise he shall post such notice in two or more public places in such city or town. He shall receive such compensation as the mayor and aldermen or selectmen may determine.

Their Duties and Powers.

SECTION 52. Such inspectors shall keep an office and shall record, in books kept for the purpose, the names and places of business of all persons engaged in the sale of milk within their city or town. They may, with the approval of the mayor or selectmen, employ collectors of samples of milk, who shall be sworn before entering upon their duties. The inspectors or collectors may enter all places in which milk is stored or kept for sale and all carriages used for the conveyance of milk, and may take therefrom samples for analysis. They shall, upon request made at the time such sample is taken, seal and deliver to the owner or person from whose possession the milk is taken a portion of each sample, and a receipt therefor shall be given to the inspector or collector. Inspectors shall cause such samples to be analyzed or otherwise satisfactorily tested, and shall record and preserve as evidence the results thereof; but no evidence of the result of such analysis or test shall be received if the inspector or collector on request, refuses or neglects to seal and deliver a portion of the sample taken as aforesaid to the owner or person from whose possession it is taken.

Vendors of Milk in Carriages to be licensed.

SECTION 53. Whoever, in cities and in towns in which an inspector of milk is appointed, conveys milk in carriages or otherwise for the purpose of selling it in such city or town shall annually, before the first day of June, be licensed by the inspector of milk of such city or town to sell milk within the limits thereof, and shall pay to such inspector fifty cents to the use of the city or town. The inspector shall pay over monthly to the city or town treasurer all money collected by him. Licenses shall be issued only in the names of the owners of carriages or other vehicles. They shall, for the purposes of

this chapter, be conclusive evidence of ownership and shall not be sold, assigned or transferred. Each license shall contain the number thereof, the name, residence, place of business, number of carriages or other vehicles used by the licensee and the name of every driver or other person employed by him in carrying or selling milk. Each licensee shall, before engaging in the sale of milk, cause his name, the number of his license and his place of business to be legibly placed on each outer side of all carriages or vehicles used by him in the conveyance and sale of milk, and he shall report to the inspector any change of driver or other person who may be employed by him occurring during the term of his license. Whoever, without being first so licensed, sells milk or exposes it for sale from carriages or other vehicles, or has it in his custody or possession with intent so to sell, and whoever violates any of the provisions of this section, shall for a first offence be punished by a fine of not less than thirty nor more than one hundred dollars, for a second offence by a fine of not less than fifty nor more than three hundred dollars and for a subsequent offence by a fine of fifty dollars and by imprisonment for not less than thirty nor more than sixty days.

Vendors of Milk in Stores to be registered.

SECTION 54. Every person, before selling milk or offering it for sale in a store, booth, stand or market-place in a city or in a town in which an inspector of milk is appointed, shall register in the books of such inspector his name and proposed place of sale, and shall pay to him fifty cents to the use of such city or town. Whoever neglects so to register shall be punished by a fine of not more than twenty dollars.

Sale of Adulterated and Skimmed Milk.

SECTION 55. Whoever, himself or by his servant or agent, or as the servant or agent of another person, sells, exchanges or delivers, or has in his custody or possession with intent to sell, exchange or deliver or exposes or offers for sale or exchange, adulterated milk or milk to which water or any foreign substance has been added, or milk produced from cows which have been fed on the refuse of distilleries, or from sick or diseased cows, or, as pure milk, milk from which the cream or a part thereof has been removed, and whoever sells, exchanges or delivers or has in his custody or possession with intent to sell, exchange or deliver, skimmed milk containing less than nine and three-tenths per cent of milk solids exclusive of fat, shall for a first offence be punished by a fine of not less than fifty nor more than two hundred dollars, for a second offence by a fine of not less than one hundred nor more than three hundred dollars and for a subsequent offence by a fine of fifty dollars and by imprisonment for not less than sixty nor more than ninety days.

Standard Milk defined.

SECTION 56. In prosecutions under the provisions of sections fifty-one to sixty-four, inclusive, milk which, upon analysis, is shown to contain in April,

May, June, July, August and September less than twelve per cent of milk solids, or less than nine per cent of milk solids exclusive of fat, or less than three per cent of fat, and in the other months to contain less than thirteen per cent of milk solids, or less than nine and three-tenths per cent of milk solids exclusive of fat, or less than three and seven-tenths per cent of fat, shall not be considered milk of good standard quality.

Penalties for Sale of Milk under Standard Quality.

SECTION 57. Whoever, himself or by his servant or agent or as the servant or agent of another person, sells, exchanges or delivers, or has in his custody or possession with intent to sell, exchange or deliver, milk which is not of good standard quality shall for a first offence be punished by a fine of not more than fifty dollars, for a second offence by a fine of not less than one hundred nor more than two hundred dollars, and for a subsequent offence by a fine of fifty dollars and by imprisonment for not less than sixty nor more than ninety days.

Vessels containing Skimmed Milk to be marked.

SECTION 58. Whoever, himself or by his agent, sells, exchanges or delivers or has in his custody or possession with intent to sell, exchange or deliver, milk from which the cream or a part thereof has been removed, not having the words "*skimmed milk*" distinctly marked upon a light ground in plain, dark, uncondensed gothic letters at least one inch in length in a conspicuous place upon every vessel, can or package from or in which such milk is, or is intended to be, sold, exchanged or delivered shall be punished as provided in section fifty-five. If such vessel, can or package is of the capacity of not more than two quarts, said words may be placed upon a detachable label or tag attached thereto and said letters may be less than one inch in length.

Sale of Condensed Milk regulated.

SECTION 59. Whoever sells, or offers for sale or exchange, condensed milk or condensed skimmed milk in hermetically sealed cans without having such cans distinctly labelled with the name of the manufacturer of such milk, the brand under which it is made and the contents of the can; and whoever sells condensed milk from cans or packages not hermetically sealed without having such cans or packages branded or labelled with the name of the manufacturer, shall be punished as provided in section fifty-five.

Penalty for using Counterfeit Seal.

SECTION 60. Whoever makes, causes to be made, uses or has in his possession, an imitation or counterfeit of a seal used by an inspector of milk, collector of samples or other officer engaged in the inspection of milk, and whoever changes or tampers with a sample taken or sealed as provided in section fifty-two, shall be punished by a fine of one hundred dollars and by imprisonment for not less than three nor more than six months.

Penalty for Connivance of Inspectors and for Obstruction of Inspection.

SECTION 61. An inspector of milk, or his servant or agent, who wilfully connives at or assists in a violation of the provisions of sections fifty-one to sixty-four, inclusive, or of section seventy, or whoever, except as provided in section forty-two, hinders, obstructs or interferes with an inspector of milk or his servant or agent in the performance of his duty, shall be punished by a fine of not less than one hundred nor more than three hundred dollars or by imprisonment for not less than thirty nor more than sixty days.

Liability of Producer of Milk limited.

SECTION 62. A producer of milk shall not be liable to prosecution for the reason that the milk produced by him is not of good standard quality unless such milk was taken upon his premises or while in his possession or under his control by an inspector of milk, by a collector of samples of milk, or by an agent of the dairy bureau or of the state board of health, and a sealed sample thereof was given to him.

Result of Analysis to be sent to Owner.

SECTION 63. An officer of the state board of health or of the dairy bureau, an inspector of milk or collector of samples or other state, city or town officer who obtains a sample of milk for analysis shall, within ten days after obtaining the result of the analysis, send it to the person from whom the sample was taken or to the person responsible for the condition of such milk.

Inspectors to make Complaints.

SECTION 64. An inspector shall make a complaint for a violation of any of the provisions of sections fifty-one to sixty-nine, inclusive, upon the information of any person who lays before him satisfactory evidence by which to sustain such complaint.

MISUSE OF MILK CANS.

ACTS OF 1906, CHAPTER 116.

AN ACT TO PROHIBIT THE MISUSE OF VESSELS USED IN THE SALE OF MILK.

SECTION 1. Whoever by himself or by his servant or agent or as the servant or agent of any other person, firm or corporation, having custody of a milk can, measure or other vessel used as a container for milk destined for sale, places or causes or permits to be placed therein any offal, swill, kerosene, vegetable matter or any article other than milk, skimmed milk, buttermilk, cream, or water or other agent used for cleansing said can, measure or other vessel, shall be punished by a fine of not more than ten dollars for each vessel so misused.

SECTION 2. Whoever by himself or by his servant or agent or as the servant or agent of any other person, firm or corporation, sends, ships, returns or delivers, or causes or permits to be sent, shipped, returned or delivered to any producer of milk any milk can, measure or other vessel used as a container for milk, containing any offal, swill, kerosene, vegetable matter, or any other offensive material, shall be punished by a fine of not more than ten dollars for every such vessel.

SECTION 3. Every licensed milk dealer who, directly or indirectly, receives milk contained in receptacles which are the property of another person, firm or corporation, shall, before selling said milk, transfer it to other clean vessels bearing his name, or the name under which his business is conducted, and no other; and said milk shall not be sold by him except from or in said vessels.

SECTION 4. Whoever violates the provisions of the preceding section shall be punished by a fine of not more than ten dollars for each offence.

SECTION 5. Sections one and two of this act shall take effect thirty days after its passage; sections three and four shall take effect four months after its passage.

MEAT AND PROVISIONS.

REVISED LAWS, CHAPTER 56.

Inspection of Meat, Provisions, etc.

SECTION 70. Boards of health of cities and towns may inspect the carcasses of all slaughtered animals and all meat, fish, vegetables, produce, fruit or provisions of any kind found in their cities or towns, and for such purpose may enter any building, enclosure or other place in which such carcasses or articles are stored, kept or exposed for sale. If, on such inspection, it is found that such carcasses or articles are tainted, diseased, corrupted, decayed, unwholesome or, from any cause, unfit for food, the board of health shall seize the same and cause it or them to be destroyed forthwith or disposed of otherwise than for food. All money received by the board of health for property disposed of as aforesaid shall, after deducting the expenses of said seizure, be paid to the owner of such property. If the board of health seizes or condemns any such carcass or meat for the reason that it is affected with a contagious disease, it shall immediately give notice to the board of cattle commissioners of the name of the owner or person in whose possession it was found, the nature of the disease and the disposition made of said meat or carcass.

Inspection of Veal, etc.

SECTION 71. The board of health may inspect all veal found, offered or exposed for sale or kept with the intent to sell in its city or town and if, in its opinion, said veal is that of a calf less than four weeks old when killed, the board shall seize and destroy or dispose of it as provided in the preceding section, subject, however, to the provisions thereof relative to the disposal of money.

Penalty for obstructing Inspector, etc.

SECTION 72. Whoever prevents, obstructs or interferes with the board of health in the performance of its duties as provided herein, or hinder, obstructs or interferes with any inspection or examination by it, or ~~whoever~~ secretes or removes any carcass, meat, fish, vegetables, fruit or provisions of any kind, for the purpose of preventing the same from being inspected or examined under the provisions of sections seventy to seventy six, ~~meantime~~, shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than sixty days, or by both such fine and imprisonment.

Sale of Unwholesome Food.

SECTION 73. Whoever knowingly sells, offers or exposes for sale or has in his possession with intent to sell for food any diseased animal or any product thereof, or any tainted, diseased, corrupted, decayed or unwholesome carcass, meat, fish, vegetables, produce, fruit or provisions of any kind shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than sixty days, or by both such fine and imprisonment; and whoever knowingly sells any kind of diseased, corrupted or unwholesome provisions, whether for meat or drink, without making their condition fully known to the buyer shall be punished by a fine of not more than two hundred dollars or by imprisonment for not more than six months.

Penalties for Sale of Unwholesome Meat, etc.

SECTION 74. Whoever kills or causes to be killed or knowingly sells, offers or exposes for sale or has in his possession with intent to sell for food the veal of a calf killed when less than four weeks old shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than sixty days, or by both such fine and imprisonment.

Board of Health may cause Publication of Certain Facts.

SECTION 75. The board of health for the city or town in which any animal or property has been condemned under the provisions of sections seventy and seventy-one may cause a description of the place in which such condemned property was found, the name of every person in whose possession it was found and the name of every person convicted of an offence under the provisions of the two preceding sections to be published in two newspapers published in the county in which such property was found.

POULTRY.

REVISED LAWS, CHAPTER 36.

Sale of Poultry regulated.

SECTION 76. Whoever knowingly sells or exposes for sale poultry, unless it is alive, before it has been properly dressed by the removal of the crop and

entrails if they contain food, shall be punished by a fine of not less than five nor more than fifty dollars for each offence. Boards of health shall cause the provisions of this section to be enforced in their respective cities and towns.

FISH.

REVISED LAWS, CHAPTER 56.

Penalty for selling Tainted Fish for Food.

SECTION 25. Whoever sells within this commonwealth or exports therefrom tainted or damaged fish, unless with the intent that the same shall be used for some other purpose than as food, shall forfeit ten dollars for every hundred pounds of such fish, and in the same proportion for any other quantity; and upon a trial in such case the burden of proof shall be upon the defendant to show for what purpose such fish was so exported or sold.

VINEGAR.

REVISED LAWS, CHAPTER 57.

Penalty for selling Adulterated Vinegar.

SECTION 66. Whoever, himself or by his servant or agent or as the servant or agent of another person, sells, exchanges or delivers or has in his custody or possession with intent to sell, exchange, or deliver or exposes or offers for sale or exchange adulterated vinegar, or whoever labels, brands or sells, as cider vinegar or as apple vinegar, any vinegar not the legitimate product of pure apple juice or not made exclusively from apple cider, shall be punished by a fine of not more than one hundred dollars.

Qualities of Vinegar defined.

SECTION 67. Vinegar shall contain no artificial coloring matter, and shall have an acidity equal to the presence of not less than four and one-half per cent by weight of absolute acetic acid. Cider vinegar shall, in addition, contain not less than two per cent by weight of cider vinegar solids upon full evaporation over boiling water. If vinegar contains any artificial coloring matter, or less than the required amount of acidity, or if cider vinegar contains less than the required amount of acidity or of cider vinegar solids, it shall be deemed to be adulterated.

Penalty for selling Deleterious Vinegar.

SECTION 68. Every person who manufactures for sale, or offers or exposes for sale, any vinegar found upon proper tests to contain any preparation of lead, copper, sulphuric acid or other ingredient injurious to health shall for each such offence be punished by a fine of not less than one hundred dollars.

Enforcement of Penalties.

SECTION 69. Inspectors of milk shall cause the provisions of the three preceding sections to be enforced.

BAKING POWDER.

ACTS OF 1902, CHAPTER 540.

Baking Powders to be labelled.

SECTION 1. Whoever manufactures for sale within this state, or offers or exposes for sale or sells any baking powder or mixture or compound intended for use as a baking powder under any name or title whatsoever shall securely affix or cause to be securely affixed to the outside of every box, can or package containing such baking powder or like mixture or compound, a label distinctly printed in brevier gothic capital letters, in the English language, containing the name and residence of the manufacturer and the ingredients of the baking powder, mixture or compound.

Penalty.

SECTION 2. Whoever violates any provision of this act shall be punished by a fine of not less than ten nor more than one hundred dollars for each offence.

WOOD ALCOHOL IN FOOD AND DRUGS.

ACTS OF 1905, CHAPTER 220.

AN ACT RELATIVE TO WOOD ALCOHOL.

SECTION 1. Whoever, himself or by his servant or agent, or as the servant or agent of any other person, sells, exchanges or delivers any wood alcohol, otherwise known as methyl alcohol, shall affix to the vessel containing the same and shall deliver therewith a label bearing the words "Wood Alcohol. Poison", in black letters of uncondensed Gothic type not less than one fourth of an inch in height. Whoever violates the provisions of this section shall pay a fine of not less than fifty dollars nor more than two hundred dollars.

SECTION 2. Whoever, himself or by his servant or agent, or as the servant or agent of any other person, sells, exchanges or delivers, or has in his possession with intent to sell, exchange or deliver, any article of food or drink, or any drug intended for internal use, containing any wood alcohol, otherwise known as methyl alcohol, shall be punished by a fine of not less than two hundred dollars or by imprisonment for not more than thirty days, or by both such fine and imprisonment.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING FEB. 2, 1907.

CITIES AND TOWNS.	Population, ¹ Est. imated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Malaria.
Boston,	609,761	261	56	40	50	27	4	-	-
Worcester,	132,240	55	11	5	18	2	3	-	-
Fall River,	106,123	35	13	9	13	3	1	-	-
Cambridge,	97,745	31	9	8	1	5	1	-	-
Lowell,	96,380	50	22	6	12	4	1	-	-
Lynn,	80,743	31	6	7	4	5	1	-	-
New Bedford,	79,744	25	7	1	4	1	-	-	-
Springfield,	78,707	36	6	4	10	3	7	-	1
Lawrence,	76,000	25	10	8	7	7	-	-	-
Somerville,	72,581	27	5	4	4	4	-	-	-
Holyoke,	51,730	21	7	3	6	3	-	-	-
Brockton,	51,280	11	4	1	3	1	-	-	-
Malden,	39,941	-	-	-	-	-	-	-	-
Chelsea,	38,659	15	-	-	4	-	-	-	-
Salem,	38,316	21	7	-	6	-	-	-	-
Newton,	38,209	14	3	1	4	1	-	-	-
Haverhill,	38,095	19	5	5	2	2	1	-	-
Fitchburg,	33,636	-	-	-	-	-	-	-	-
Everett,	31,274	6	-	-	-	-	-	-	-
Taunton,	30,967	21	2	5	3	3	2	-	-
Quincy,	29,944	7	1	-	1	-	-	-	-
Waltham,	27,493	5	-	1	-	1	-	-	-
Pittsfield,	26,425	-	-	-	-	-	-	-	-
Gloucester,	26,011	-	-	-	-	-	-	-	-
Brookline,	25,003	3	1	-	-	-	-	-	-
North Adams,	22,150	8	0	-	-	-	-	-	-
Chicopee,	20,615	8	4	-	3	-	-	-	-
Northampton,	20,508	7	3	-	2	-	-	-	-
Medford,	20,294	10	2	3	-	3	-	-	-
Beverly,	15,794	4	1	1	-	1	-	-	-
Leominster,	15,139	4	-	-	-	-	-	-	-
Hyde Park,	15,050	2	0	-	-	-	-	-	-
Melrose,	14,867	6	1	-	1	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	7	1	-	-	-	-	-	-
Marlborough,	14,263	5	1	-	-	-	-	-	-
Westfield,	14,169	5	3	3	-	2	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	2	1	1	-	-	-	-	-
Attleborough,	13,294	10	2	-	4	-	-	-	-
Clinton,	13,105	8	2	2	1	2	-	-	-
Adams,	13,072	4	1	2	-	-	-	-	-
Gardner,	12,528	-	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	4	0	1	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	7	0	1	-	1	-	-	-
Framingham,	11,648	4	-	-	-	-	-	-	-
Southbridge,	11,416	4	4	1	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,120,183	828	201	123	163	81	13	1	2
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING FEB. 9, 1907.

CITIES AND TOWNS.	Population Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Ptphisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	221	42	39	43	32	3	-	-
Worcester,	132,240	56	12	17	9	10	4	-	-
Fall River,	106,123	48	18	9	9	4	-	-	-
Cambridge,	99,745	28	5	8	5	7	-	-	-
Lowell,	96,380	48	14	7	10	4	-	-	-
Lynn,	80,743	24	5	3	4	2	-	1	-
New Bedford,	79,744	29	9	1	10	1	-	-	-
Springfield,	78,707	27	3	2	2	2	-	-	-
Lawrence,	76,000	24	9	5	7	-	-	2	-
Somerville,	72,581	17	4	3	3	1	-	-	-
Holyoke,	51,730	26	9	4	8	4	-	-	-
Brockton,	51,289	18	3	-	2	-	-	-	-
Malden,	39,941	14	5	1	3	1	-	-	-
Chelsea,	38,659	16	-	1	2	1	-	-	-
Salem,	38,316	15	5	1	3	-	-	1	-
Newton,	38,209	8	2	1	2	-	-	-	-
Haverhill,	38,095	14	1	3	1	2	-	-	-
Fitchburg,	33,636	6	1	1	2	1	-	-	-
Everett,	31,274	7	1	2	-	1	1	-	-
Taunton,	30,967	-	-	-	-	-	-	-	-
Quincy,	29,944	8	-	2	-	2	-	-	-
Waltham,	27,493	5	-	1	1	1	-	-	-
Pittsfield,	26,425	13	1	1	3	1	-	-	-
Gloucester,	26,011	-	-	-	-	-	-	-	-
Brookline,	25,003	9	1	1	2	-	-	-	-
North Adams,	22,150	5	1	-	1	-	-	-	-
Chicopee,	20,615	6	3	-	4	-	-	-	-
Northampton,	20,508	11	3	-	1	1	-	-	-
Medford,	20,294	8	-	-	1	-	-	-	-
Beverly,	15,794	5	-	-	1	-	-	-	-
Leominster,	15,139	4	-	-	1	-	-	-	-
Hyde Park,	15,050	3	2	-	-	-	-	-	-
Melrose,	14,867	6	-	-	-	-	-	-	-
Newburyport,	14,755	-	2	1	-	-	-	-	-
Woburn,	14,462	6	2	-	-	2	-	-	-
Marlborough,	14,263	8	3	-	-	2	-	-	-
Westfield,	14,169	4	1	-	-	1	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	1	-	-	-	1	-	-	-
Attleborough,	13,294	3	0	1	1	1	-	-	-
Clinton,	13,105	4	1	-	-	-	-	-	-
Adams,	13,072	2	-	1	-	-	-	-	-
Gardner,	12,528	-	-	-	-	-	-	-	-
Milford,	12,409	6	1	3	-	2	-	1	-
Watertown,	11,946	1	0	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	7	1	1	1	1	-	-	-
Framingham,	11,648	4	2	1	1	1	-	-	-
Southbridge,	11,416	8	2	1	1	1	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,201,627	783	174	122	151	82	9	4	-
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WEEK ENDING FEB. 16, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal Infectious Diseases.	Acute Lungs Diseases.	Pitiflisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	262	56	42	50	34	1	-	-	-
Worcester,	132,240	57	13	11	13	5	2	2	1	-
Fall River,	106,123	-	-	7	6	-	-	-	-	-
Cambridge,	99,745	35	10	2	13	2	2	2	1	-
Lowell,	96,380	41	13	3	3	3	3	3	3	-
Lynn,	80,743	28	8	3	4	2	2	2	2	-
New Bedford,	79,744	29	8	7	1	-	-	-	-	-
Springfield,	78,707	38	6	2	9	2	2	2	2	-
Lawrence,	76,000	31	10	6	9	1	1	1	1	-
Somerville,	72,581	12	4	3	3	2	2	2	2	-
Holyoke,	51,730	14	8	3	4	2	2	2	2	-
Brockton,	51,289	22	8	4	1	1	1	1	1	-
Malden,	39,941	11	2	3	3	2	2	2	2	-
Chelsea,	38,659	14	6	4	1	-	-	-	-	-
Salem,	38,316	10	3	3	1	1	1	1	1	-
Newton,	38,209	7	2	2	8	2	2	2	2	-
Haverhill,	38,095	22	5	3	3	2	2	2	2	-
Fitchburg,	33,636	-	-	3	3	2	2	2	2	-
Everett,	31,274	10	1	4	1	1	1	1	1	-
Taunton,	30,967	12	2	1	33	33	33	33	33	-
Quincy,	29,944	6	2	1	3	2	2	2	2	-
Waltham,	27,493	17	6	1	1	1	1	1	1	-
Pittsfield,	26,425	9	2	1	1	1	1	1	1	-
Gloucester,	26,011	5	1	1	1	1	1	1	1	-
Brookline,	25,003	10	1	2	2	2	2	2	2	-
North Adams,	22,150	12	3	2	2	2	2	2	2	-
Chicopee,	20,615	7	3	1	1	1	1	1	1	-
Northampton,	20,508	11	1	2	1	1	1	1	1	-
Medford,	20,294	4	-	1	1	1	1	1	1	-
Beverly,	15,794	5	1	2	2	2	2	2	2	-
Leominster,	15,139	6	2	1	1	1	1	1	1	-
Hyde Park,	15,050	5	2	1	1	1	1	1	1	-
Melrose,	14,867	4	0	1	1	1	1	1	1	-
Newburyport,	14,755	-	-	2	1	1	1	1	1	-
Woburn,	14,462	9	1	1	1	1	1	1	1	-
Marlborough,	14,263	9	2	1	1	1	1	1	1	-
Westfield,	14,169	2	-	1	1	1	1	1	1	-
Peabody,	13,787	-	-	1	1	1	1	1	1	-
Revere,	13,697	5	1	2	1	1	1	1	1	-
Attleborough,	13,294	4	1	1	1	1	1	1	1	-
Clinton,	13,105	4	0	1	1	1	1	1	1	-
Adams,	13,072	3	-	2	1	1	1	1	1	-
Gardner,	12,528	-	-	1	1	1	1	1	1	-
Milford,	12,409	4	1	3	1	1	1	1	1	-
Watertown,	11,946	2	0	1	1	1	1	1	1	-
Plymouth,	11,796	-	-	-	1	1	1	1	1	-
Weymouth,	11,691	7	-	1	1	1	1	1	1	-
Framingham,	11,648	7	0	-	1	1	1	1	1	-
Southbridge,	11,416	4	-	-	1	1	1	1	1	-
Wakefield,	10,687	-	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, .	2,118,846	816	193	125	154	85	9	5	-
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WEEK ENDING FEB. 23, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	225	53	36	44	20	2	-	-	-
Worcester,	132,240	40	10	5	9	2	-	-	-	-
Fall River,	106,123	52	13	16	17	9	1	-	1	-
Cambridge,	99,745	31	11	4	6	2	1	-	-	-
Lowell,	96,380	42	13	7	15	6	-	-	-	-
Lynn,	80,743	16	2	1	-	1	-	-	-	-
New Bedford,	79,744	33	9	1	4	1	-	-	-	-
Springfield,	78,707	24	6	5	5	1	-	-	-	-
Lawrence,	76,000	35	13	4	3	1	-	-	1	-
Somerville,	72,581	18	6	5	3	1	-	-	-	-
Holyoke,	51,730	22	8	2	2	3	-	-	-	-
Brockton,	51,289	21	6	3	2	-	-	-	-	-
Malden,	39,941	9	5	-	1	-	-	-	-	-
Chelsea,	38,659	11	0	3	-	3	-	-	-	-
Salem,	38,316	17	6	3	-	2	-	-	-	-
Newton,	38,209	8	4	-	1	-	-	-	-	-
Haverhill,	38,095	10	4	1	-	1	-	-	1	-
Fitchburg,	33,636	10	-	1	-	1	-	-	1	-
Everett,	31,274	9	4	2	-	1	-	-	-	-
Taunton,	30,967	14	3	2	-	7	-	-	-	-
Quincy,	29,944	8	2	2	-	-	-	-	-	-
Waltham,	27,493	10	1	2	1	1	2	-	-	-
Pittsfield,	26,425	10	2	4	1	1	1	-	-	-
Gloucester,	26,011	11	1	4	-	-	-	-	1	-
Brookline,	25,003	7	1	1	-	-	-	-	-	-
North Adams,	22,150	13	2	1	1	1	-	-	1	-
Chicopee,	20,615	4	-	1	-	-	-	-	-	-
Northampton,	20,508	10	-	1	3	-	-	-	-	-
Medford,	20,294	1	-	-	-	1	-	-	-	-
Beverly,	15,794	5	3	-	-	-	-	-	-	-
Leominster,	15,139	5	2	-	2	-	-	-	-	-
Hyde Park,	15,050	5	-	-	-	-	-	-	-	-
Melrose,	14,867	3	0	-	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-	-
Woburn,	14,462	7	1	-	-	2	-	-	-	-
Marlborough,	14,263	4	0	1	-	-	1	-	-	-
Westfield,	14,169	5	2	-	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-	-
Revere,	13,697	3	2	-	-	-	-	-	-	-
Attleborough,	13,294	5	1	-	-	-	-	-	-	-
Clinton,	13,105	5	1	2	-	-	2	-	-	-
Adams,	13,072	4	1	1	-	-	1	-	-	-
Gardner,	12,528	8	4	3	-	-	-	-	-	-
Milford,	12,409	7	-	2	2	2	2	-	-	-
Watertown,	11,946	3	0	1	1	1	1	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-	-
Weymouth,	11,691	3	0	-	-	-	-	-	-	-
Framingham,	11,648	10	1	-	-	1	-	-	-	-
Southbridge,	11,416	5	1	2	-	2	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns,	2,271,133	808	207	123	152	69	7	4	2
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WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS DISEASES.

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN ABOVE TABLES DURING THE WEEKS OF FEB. 2, 9, 16 AND 23, 1907.

DISEASE.	Place.	WEEK ENDING —			
		Feb. 2.	Feb. 9.	Feb. 16.	Feb. 23.
Cerebro-spinal meningitis,	Attleborough,	-	-	1	-
	Boston,	3	-	2	7
	Cambridge,	-	-	2	-
	Chelsea,	-	-	1	-
	Everett,	-	-	-	1
	Fall River,	-	-	-	3
	Haverhill,	-	1	-	-
	Holyoke,	-	-	-	1
	Framingham,	-	1	-	-
	Newton,	-	1	-	-
	Pittsfield,	-	-	-	1
	Salem,	-	-	-	1
	Worcester,	-	3	2	-
Erysipelas,	Boston,	1	3	-	-
	Somerville,	-	-	-	1
Scarlet fever,	Boston,	1	1	1	2
	Brookline,	-	1	-	-
	Cambridge,	-	1	2	1
	Everett,	-	-	1	-
	Gardner,	-	-	-	3
	Lawrence,	-	1	-	-
	Lowell,	-	2	-	-
	Pittsfield,	-	-	-	1
	Revere,	1	-	-	-
	Somerville,	2	1	1	-
	Springfield,	-	-	-	1
	Westfield,	1	-	-	-
	Worcester,	-	-	2	2
Whooping cough,	Boston,	2	-	2	3
	Chelsea,	-	-	1	-
	Chicopee,	-	-	-	1
	Fall River,	2	-	-	-
	Holyoke,	-	-	1	-
	Lawrence,	1	-	1	1
	Lowell,	-	1	-	1
	Melrose,	-	1	-	-
	Milford,	-	-	1	-
	Somerville,	-	-	-	1
	Springfield,	-	-	-	1
	Taunton,	-	-	1	-
Influenza,	Adams,	2	1	-	-
	Milford,	-	-	1	-
	Watertown,	1	-	-	-
	Haverhill,	2	-	-	-

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF FEB.
2, 9, 16 AND 23, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	Feb. 2.	Feb. 9.	Feb. 16.	Feb. 23.
Diphtheria,	185	184	166	178
Measles,	71	71	72	57
Scarlet fever,	259	263	231	186
Typhoid fever,	32	25	27	17
Tuberculosis,	63	87	74	67
Cerebro-spinal meningitis,	6	7	2	18
Erysipelas,	2	2	—	—
Whooping cough,	11	6	3	7
Chicken pox,	10	1	—	—

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of February, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Butter,	19	2	21	Sausages,	35	6	41
Canned meats,	6	2	8	Tongue cheese,	1	—	1
Canned soups,	2	—	2	Tripe,	2	—	2
Cheese,	3	—	3	Pickles,	4	1	5
Cider,	1	5	6	Salad dressing,	4	2	6
Cocoa,	4	—	4	Saleratus,	2	—	2
Coffee,	2	—	2	Shrimps,	1	1	2
Cream,	1	—	1	Spices,	7	—	7
Cream of tartar,	8	—	8	Syrup (strawberry),	—	1	1
Jams and jellies,	6	1	7	Tea,	2	—	2
Maple syrup,	1	7	8	Vinegar,	4	3	7
Milk,	79	66	145	Drugs,	65	16	81
Hamburg steak,	3	4	7	Total,	269	117	386
Head cheese,	5	—	5				
Mince meat,	2	—	2				

The samples of drugs found to be adulterated were: aqua hamamelidis spirituosa, cera flava, spiritus camphoræ, tinctura iodi and several proprietary preparations.

The cities and towns in which samples were collected were: Boston, Brookline, Cambridge, Dedham, Fall River, Foxborough, Gloucester, Hyde Park, Lowell, Lynn, Malden, Marlborough, Medford, Melrose, New Bedford, Needham, Newburyport, South Framingham, Taunton, Waltham, Warren and Weymouth.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Seventeen convictions were secured during the month of February, 1907, for selling adulterated food and drugs, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Thos. W. DeWare (Rhodes Brothers).	Brookline, . . .	Hamburg steak.
2	Arthur T. Cogone,	Brookline, . . .	Maple sugar.
3	Maxime Malo,	Lowell,	Maple syrup.
4	Frank O. Emerson,	No. Attleborough,	Maple syrup.
5	John Nabed,	Lawrence, . . .	Milk (total solids, 9.60; watered).
6	John Nabed,	Lawrence, . . .	Milk (total solids, 10).
7	Manuel J. Silva,	Lawrence, . . .	Milk (total solids, 11.70).
8	Milton J. Sawyer,	Lawrence, . . .	Milk (total solids, 11.24).
9	Alcide E. Lacaillade,	Lawrence, . . .	Milk (total solids, 11.72).
10	Manuel J. Spinalo,	Lawrence, . . .	Milk (total solids, 11.45).
11	Harry P. Hinckley,	Boston, . . .	Tomato bouillon.
12	William J. Carney,	Melrose, . . .	Common-sense Opiate Cure. ¹
13	William J. Carney,	Melrose, . . .	Common-sense Opiate Cure. ¹
14	Melvin B. Buckley, D. D. S.,	Boston, . . .	Standard Catarrh Snuff. ¹
15	Melvin B. Buckley, D. D. S.,	Boston, . . .	Standard Catarrh Snuff. ¹
16	Walter Veno,	Boston, . . .	Standard Catarrh Snuff. ¹
17	John W. Hawkins,	Boston, . . .	T. C. R., Catarrh Snuff. ¹

Fines imposed, \$255.

¹ Violation of chapter 386, Acts of 1906.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR FEBRUARY, 1907.

Number of Sample.	Character of Sample.	Brand, or Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
3376 M	"Hub" champagne cider.	Hub Bottling and Extract Company, Boston,	Large admixture of sugar, malic acid and carbonated water.
3344 M	"Golden Russet" champagne cider.	Standard Bottling and Extract Company, Boston,	Large admixture of sugar, malic acid and carbonated water.
3382 M	"Golden Seal" champagne cider.	Otis S. Neale Company, Boston,	Large admixture of sugar, malic acid and carbonated water.
5002	Wild raspberry preserves, "Gilt Edge" Pure Vermont Maple Syrup.	F. P. Adams & Co., Boston,	Preserved with benzoic acid.
7465 N	Deviled ham, Veribest Vienna sausage, Columbia salad dressing, Alpha salad cream, ¹ Libby's salad dressing, Yacht club salad dressing.	J. G. Turner, Medford,	25 per cent. refined cane sugar syrup.
5071	Deviled ham,	Armour & Co., Chicago, Ill.,	Contained a boron preservative.
3223 M	Veribest Vienna sausage, Columbia salad dressing, Alpha salad cream, ¹ Libby's salad dressing, Yacht club salad dressing.	Armour & Co., Chicago, Ill.,	Contained a boron preservative.
3172 M	Columbia Conserve Company, Indianapolis, Ind., H. J. Blodgett & Co., Boston,	H. J. Blodgett & Co., Boston,	Contained a boron preservative.
4782	. . . . .	Libby, McNeil & Libby, Chicago, Ill.,	Contained a boron preservative.
4781	. . . . .	Tildesley & Co., Chicago, Ill.,	Contained a boron preservative.
5146	. . . . .	P. J. Ritter Conserve Company, Philadelphia, Pa.,	Contained a boron preservative.
5115	Strawberry syrup, "Fruee," The liquor of fruit.	The Frue Co., North Attleborough,	Preserved with benzoic acid.
A 293	. . . . .	. . . . .	33.97 per cent. alcohol; a highly fortified wine.
5036	Coca wine, Kola cardinette, Whisky.	Cushing Medical Supply Company, Boston,	Contained cocaine.
5121	. . . . .	Palisade Manufacturing Company, Yonkers, N. Y.,	Contained cocaine.
3342 M	. . . . .	G. O. Blake whisky,	Contains artificial color and admixed rectified spirits.

¹ Samples from more recent lots contained no boron.

INSPECTION OF DAIRIES.

During the month of February, 1907, 273 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Acushnet,	62	12	19.35	50	80.65
Berkley,	3	1	33.33	2	66.67
Dartmouth,	4	1	25.00	3	75.00
Fairhaven,	44	4	9.09	40	90.91
Fall River,	20	4	20.00	16	80.00
Lakeville,	1	-	-	1	-
Mattapoisett,	15	2	13.33	13	86.67
New Bedford,	16	3	18.75	13	81.25
Rochester,	3	-	-	3	-
Somerset,	20	6	30.00	14	70.00
Swansea,	24	11	45.83	13	54.17
Westport,	61	6	9.84	55	90.16

Total number of dairies examined,	273
Number found to be free from objectionable conditions,	50
Number to which letters were sent,	223
Total number of conditions to which attention was called,	992
Percentage of dairies which passed inspection,	18.32

The names of the owners of the dairies found to be worthy of commendation follow :—

Acushnet.

Bradford Bros.	Hammett, John F.	Perry, H. F.
Douglass, J. O.	Hathaway, T. O.	Robinson, T. J.
Fuller, George A.	Hayes, J. F.	Shattuck, A. C.
Gilmore, A. P. R.	Linden, Robert J.	White, W. A.

Berkley.

Haskins, J. T.

Dartmouth.

Barnes, T. W.

Fairhaven.

Blossom, Frank
Blossom, L. F.

Morse, John P.
Peirce, Henry C.

Fall River.

Barrows, J. F.
Davenport, Charles T.

Mattapoisett.

Ellis, C. W.

Gamans, W. A.

New Bedford.

Cotter, Joseph

Hathaway, F. B.

Peets, John E.

*Somerset.*Buffington, Thomas
Gardner, George P.Parsons, William J.
Slade, John L.Wilbur, Daniel
Wright, David*Swansea.*Anthony, William F.
Arnold, F. G.
Chace, Benjamin S.
Chace, Charles S.Covel, T. D.
Gardner, E. C.
Gardner, John C.
Pearse, William G.Soares, J. R.
Stevens, Mrs. F. S.
Wood, Henry O.*Westport.*Mosher, Wilfred A.
Perry, John A.Pierce, J. F.
Sanford, Irving F.Tripp, Godfrey
Tripp, J. A.**THE PROTECTION AND CONTROL OF THE MILK SUPPLY.**BY R. HARCUORT, B. S. A., *Professor of Chemistry, Ontario Agricultural College, Guelph.*

[Reprinted from "The British Medical Journal," Sept. 22, 1906.]

There are very few places in Canada where it is possible to procure a regular supply of milk that has been produced under really clean conditions, thoroughly cooled and bottled in a proper manner. The methods commonly employed are so faulty, and the evils resulting from the use of impure milk so numerous and of such a serious nature, that any one interested in the public welfare should be anxious to bring about an improvement in the condition of this valuable food.

If the true value of milk as a food were more fully appreciated, it would be used much more freely. Chemical analyses and experience prove that among all our food materials there is none more wholesome than good pure milk. It is cheap, palatable, easily digested and highly nutritious. Its value as an article of diet for children and invalids is fully recognized; but for adults in good health it is too frequently regarded as a luxury, to be used as a condiment with tea, coffee and fruit, as an adjunct in cooking. Milk is, however, not only a condiment and beverage, but a food, and a very valuable one.

For some reason milk is commonly considered too expensive to be used freely, while, as a matter of fact, it is one of the most inexpensive of foods. It contains all the constituents required for building up and repairing the tissues of the body, for maintenance of heat and the production of energy. Furthermore, it furnishes these materials in about the proper proportion to satisfy the various needs of the body, and at a lower cost than they can be procured from many of our common foods. If we take heat as the basis on which to value foods, it will be found that a greater number of calorics of heat can be obtained from a given sum of money expended on milk than on any other food, excepting some of the cheaper forms of cereal products and potatoes. Few people realize that the materials needed to nourish the body can be obtained from milk more cheaply than from meat, and that it will take the place of other food.

On the other hand, the very qualities which make milk such a desirable food also render it undesirable from another standpoint. It is a particularly fine medium for the growth of bacteria; and, as a result of the manner of its production and the way it is commonly handled, it is subject to contamination with bad flavors, dirt and all the myriads of germs usually associated with the dust that accumulates in the stable.

The two main points to be considered in valuing market milk are quality and purity. The average percentage composition of milk is about as follows:—

Different cows yield milk varying widely in composition, but when the milk from a herd of cows is mixed it is fairly constant in composition from day to day. At the same time there are wide differences in the composition of the milk from different herds. The fat is the only constituent subject to wide variations; but investigations in our laboratory and elsewhere tend to prove that, while the percentage amount of solids not fat is fairly constant, it does increase and decrease somewhat with the amount of fat; consequently, the percentage of fat may be taken as a fair basis for valuing the milk.

The taste and purity of milk are influenced in many ways. Bad flavors may be given to it from the food eaten by the cow, by the foul air the

animal is compelled to breathe, by the products of certain germs, or by the direct absorption of bad odors. Milk is practically never free from bacteria, and even with the utmost care it is impossible to altogether prevent further contamination. Under the usual conditions, hairs and scales from the body, dust from the udder, sides of the cow and from the air in the stable, and even dried particles of animal manure, all loaded with germ life, find their way into the milk during the milking operations. When it is allowed to stand exposed in the stable until the milking is completed, as is frequently the case, more organisms are added. Further, when being delivered it is again liable to be contaminated from the dust of the roads. In some cases partially cleaned bottles taken from one house are filled at the wagon and delivered at the next. In these and many other ways milk may be contaminated with bacteria of various kinds and dirt of all descriptions. In fact, it is quite probable that, if a commission were appointed to investigate the condition of the milk supply, a worse state of affairs would be found existing than reported of the United States meat-packing houses.

Fortunately, there is a growing demand among a certain class of people for a better milk. In the past the local boards of health and other authorities dealing with the milk problem have specified that milk should contain a certain percentage of fat and solids not fat; but it has been only within comparatively recent years, and in a few districts, that any attention has been paid to the germ content. Many of the larger milk dealers have inaugurated a system of inspection, and are honestly endeavoring to furnish a pure article; but countless numbers of the smaller concerns that deliver directly to the consumer are practically under no inspection whatever.

Investigations and experience have shown that freshly drawn milk that has been produced under strictly sanitary methods should contain only a few hundred bacteria to the cubic centimeter. It has been obtained so pure that at the end of twenty-four hours there were still less than 100 germs per cubic centimeter. In this case the utmost care was taken in every detail. The cows were even taken to the milker, who remained in a thoroughly disinfected room. Such milk will remain sweet for a long time, especially if kept at a low temperature.

Country milk produced under ordinary methods, but drawn from reasonably clean cows in clean stables, and kept at a low temperature, should not contain more than 5,000 to 20,000 bacteria per cubic centimeter when first placed on the market. Milk of this nature, if free from objectionable flavor, may be regarded as satisfactory for general consumption.

However, milk produced under conditions ordinarily prevailing is

likely to contain 50,000 or more germs per cubic centimeter when first offered for sale. The number increases very rapidly at the ordinary temperature, consequently milk delivered in our larger towns and cities may often contain several hundred thousand, or even many millions, of bacteria per cubic centimeter.

A large number of organisms in the milk indicates that the milk is old, or that it has been kept at too high a temperature, or that it has been produced under insanitary conditions. If the germs are chiefly lactic acid organisms, the milk may be old, but not necessarily dirty. The presence of many liquefying organisms is an indication that filth of some sort has gained access to the milk, and that it may contain many other germs of a harmful nature.

The consumer has a right to demand that the milk furnished him shall be clean; that it will keep at least twenty-four hours after it is received, if kept at a temperature of 60° F., or below; that the flavor be not injured by improper feeding, careless methods of handling, or by the development of bacteria which cause bad flavors; that it contain no disease germs, or any form of preservative; and that the milk have a certain known composition, which is uniform from day to day.

In order that the milk may conform to these requirements, it is essential that the cows be healthy; that they get good food and water; that they be kept out of the filth of a dirty barnyard; and that they be stabled in a clean, well-lighted and well-ventilated barn. The ceiling should be tight, excluding dust and chaff from above, the sides smooth, and the whole whitewashed annually. It is imperative that the udders be thoroughly cleaned before milking, and that every care be taken to prevent dust and dirt of all kinds from getting into the milk. As soon as the milk is drawn it should be removed from the stable to a milk room, which must be some distance from the barn, and so arranged that it can be easily cleaned and disinfected. There the milk should be aerated and cooled to about 40° F. If it is to be bottled for direct delivery, it should be done at once, and kept at a low temperature until delivered. All utensils, cans, bottles, etc., should be thoroughly cleaned and sterilized. In fact, only the most careful attention to every detail of the work will ensure clean, pure milk.

At the present time the milk in this country is practically all sold by measure, either from the can or in the bottle. Selling milk in this way is unjust to the producer, as well as to the consumer. While the fallacy of this system is apparent to a few, the majority of people seem to think that one quart of milk is worth as much as any other, as long as it is sweet. The reason for this is partly a lack of knowledge as to what constitutes good milk, and partly because it is difficult to judge

milk from its appearance; for this reason it is possible for dishonest producers to dilute their milk or remove part of the cream.

Governing bodies have attempted to overcome this difficulty by passing laws making it unlawful to change the composition of the milk. Where these laws have been enforced, the dilution of milk to a great extent has ceased; but dealers have not been compelled to sell milk of a known composition, and surely the purchaser has a right to know the composition, and consequently the food value, of the article he is buying.

In some places a standard has been fixed, below which it is unlawful to sell milk. These standards seldom require more than 3 to $3\frac{1}{2}$ per cent. of fat and 12 per cent. of total solids. This has not reached the difficulty, for it makes the sale of milk coming direct from some cows that give milk low in fat unlawful, while it is good, wholesome milk, and a perfectly legitimate product when sold in its proper place. This system also hinders the man whose cows produce rich milk from getting the price he should, according to its food value and cost of production, for milk containing a high percentage of fat is not only worth more, but costs more to produce than milk containing a small amount of fat.

Other things being equal, the price of milk should depend on its composition. It is most unreasonable for milk containing but 3 per cent. of fat to sell for the same price per quart as 5 per cent. milk. Since fat in milk is the most variable constituent, the other solids remaining fairly constant, it is a comparatively simple matter to standardize milk. All that is necessary is to remove part of the fat, which is easily done by means of the cream separator, and then return it in sufficient quantities to bring the milk up to the desired standard. By use of the Babcock test and cream separator there is nothing to prevent the milk dealer from furnishing his customers with milk of a uniform or any desired richness, without regard to the quality yielded by the cow. In this way the dealer may supply milk containing 3, 4 or 5 per cent. of fat, as may be required, and the price could be regulated according to the richness in fat. This method has a further advantage, in that in passing the milk through the separator a part of the filth is removed.

Recently a grade of milk known as "certified milk" has been placed on the market. It is milk of a known composition, as clean and free from bacteria as science and skill can make it, and produced from an inspected herd. A good class of certified milk should not contain more than a few hundred bacteria per cubic centimeter, although some standards allow as many as 10,000. When milk of this grade is for sale, a public statement should be made, certifying to the methods of production and the percentage of fat it contains, and means should be devised whereby the public may have the assurance that it is really all that it is

claimed to be. Such milk should find a ready sale, even at the advanced price it would be necessary to ask for it. An effort should be made to get the public to inspect the dairies, and see for themselves the condition of affairs. Physicians should also be willing to inspect the whole process of handling, in order that they may be in a position to recommend the best milk to their patients.

Pasteurization of milk is now being extensively practiced by most of the larger milk dealers. The milk handled by these companies is usually gathered from a large number of producers, and generally has a high bacteria count by the time it reaches the company's buildings. As such milk is frequently three or even four days old before it is actually used by the consumer, it is at once evident that pasteurization is necessary; but where the milk can be bottled immediately after it is drawn, and cooled and delivered direct to the consumer, there should be no need of pasteurization.

Various chemical preservatives are sometimes added to milk, to prevent it from souring. Some of these substances are undoubtedly harmful, others may or may not be; but I think all will agree that, as milk is used freely by children and the sick, the addition of preservatives of any kind should not be countenanced, and every effort should be made to entirely prevent their use in any form or in any quantity in milk. Moreover, it has been abundantly demonstrated that milk can be kept long enough for all practical purposes without them, and that their use only serves to encourage slovenly, slipshod methods of handling the milk.

In a word to the consumers, it may be stated that the producers are not altogether to blame for the present state of affairs. The consumers have not as a class made themselves familiar with the nature of milk, in order that they may intelligently judge of its quality and understand the care it requires after it is delivered. They have not shown a disposition to encourage the sale of the pure article to the extent of being willing to pay more for it.¹ A really good milk cannot be produced as cheaply as the ordinary kind, and when the price of milk is raised, the consumer, not appreciating the added value, objects to paying the advanced price. This naturally discourages further efforts toward improvement. However, when consumers awaken to the true nature of the ordinary trade milk and realize the risk they are running in using it, demand milk of known quality and purity and are willing to pay for it, such milk will be supplied.

In conclusion, it may be stated that on every hand there is evidence of the need of closer inspection. Milk is an opaque substance, which nat-

¹ It will be observed that in Canada, as in Massachusetts and other States, it is the purchasing public that is chiefly responsible for the dirty condition of market milk.—ED. "BULLETIN."

urally hides impurities and adulterations, and is particularly liable to serious contamination. There are, and doubtless always will be, certain men in the milk trade who, from the slovenly methods they employ, are a disgrace to the business and a menace to the health of the community. A system of inspection should be instituted, and a standard of quality and purity for market milk should be set up, that will force these men out of business, encourage the careful producer and improve the quality of the milk offered for sale.

PECUNIARY VALUE OF MILK.

The small profits in the milk business will probably always prevent a reform in methods of distribution. The poor are wedded to the idea that milk should never cost more than 5 cents in summer and 6 in winter, for those are the prices paid for generations. They do not realize that a 5-cent piece is not worth as much as it was twenty-five years ago. They are actually paying less for the milk. The farmer and dealer profit so little that many of them give up the business. In addition, old, cheap methods produced dangerous milk, and to be clean, as modern sanitarians demand, is very costly. Milk fit for babies cannot be produced for less than 9 or 10 cents. Such rich milk at 10 cents is really cheap as compared with many meats, and the demand for 5-cent milk is therefore foolish. The baby is begrudging 5 cents a day, but the parents often consume beer *ad libitum*. ("American Medicine," December, 1906.)

ACETANILID POISONING.

Death from Koehler's Headache Powders.—Dr. P. Loewenthal, New York City, reports the death of a man in an hour and a half after taking two of Koehler's headache powders. The coroner's jury returned the following verdict:—

The said James Tobias came to his death on the second day of September, 1906, at 1187 Lexington Avenue, by acetanilid poisoning, administered at the time and place aforesaid in Koehler's headache powders, purchased at drug store of P. Jaffe, 1133 Lexington Avenue.

Chemist C. P. O'Conner made an analysis of a sample powder, and reported it to be "made up of acetanilid."

The analysis of this nostrum, made under the direction of the Council on Pharmacy and Chemistry, was published in "The Journal," June 3, 1905, p. 1791. According to this analysis, Koehler's headache powders contain, approximately: acetanilid, 76 per cent.; and caffein, 22 per cent. ("Journal of the American Medical Association," 1907, No. 9, p. 813.)

PHENACETIN (ACETPHENETIDIN) V. ACETANILID.

It is interesting to trace the influence of medical fashion and similar factors on the estimation in which the various synthetic analgesics are held by the medical profession. Acetanilid, the most widely known of these agents, has met condemnation chiefly because it has been most indiscriminately employed, not only by the medical profession, but also by the lay public. It was one of the first to be freed from the restrictions of the patent laws, and, on account of its cheapness, rapidly rose in professional and public esteem. In consequence, however, of some fatalities and of the evil done by its indiscriminate and habitual use, it passed under the ban, and phenacetin took its place to a large extent in the armamentarium of the careful physician. The extensive use of acetanilid in proprietary mixtures and popular headache powders, and the fatalities following such use, tended to increase its ill repute among physicians. How far the fact that phenacetin was still a patented and proprietary article has shielded it from condemnation as a toxic agent cannot be stated, but undoubtedly less has been heard of its dangers than would have been the case had it stood alone, without the protection which goes with proprietary articles. Phenacetin is reputed to be much safer than acetanilid, but how well-founded this opinion is cannot be determined until it shall have been used as extensively and as recklessly as the cheaper and better-known drug. It is the opinion of pharmacologists that, except for the difference in dose needed to produce the effect, the actions of the two drugs are identical. While the toxic dose is much larger for phenacetin than for acetanilid, the amount necessary to produce the desired therapeutic effect is also proportionately larger. This being the case, caution regarding the use of phenacetin is as appropriate as in the case of acetanilid. There is reason for the legal regulation of the sale of phenacetin, as well as of acetanilid. The ill repute of acetanilid has secured its mention by name in the pure food and drugs law, while

phenacetin can be included only by implication as one of the derivatives of acetanilid. There has been some question whether phenacetin can be so classed. The commission appointed to draft rules and regulations governing the administration of the law decided that phenacetin belongs among the derivatives of acetanilid, and that its name must appear on the labels of medicines or foods which contain it. The decision of the commission appears not to be final, and the question is still undecided. It has been surmised that the manufacturers of analgesic proprietaries were about to seek to escape the odium which now attaches to acetanilid, and the necessity of publishing the fact of its presence in their remedies, by substituting phenacetin for it. Whether this will be extensively done remains to be seen. It is stated on good authority that the proprietors of some nostrums heretofore containing acetanilid, and advertised to the medical profession, have already made this change. Thus, they think, they may be saved the disgrace of having to confess openly the real character of their mixtures. In view of the possibility of such a movement, it would be much to be regretted if phenacetin should escape the operation of the law. It is to be hoped that the decision of the commission will be sustained, and that the proper labelling of mixtures containing this drug will prevent its becoming as great a menace to the public as acetanilid has been. We have used the word "phenacetin" because it is best known under this title; this name, however, is controlled; the official title given it is acetphenetidin. ("Journal of the American Medical Association," Dec. 8, 1906, p. 1924.)

NOTE ON VACCINATION.

The cruiser "Chattanooga" arrived in Manila from Shanghai, January 9, with a case of smallpox on board, in the person of the paymaster's clerk. It is of medical interest to state that the entire personnel, including officers, were vaccinated several months ago, with the exception of the paymaster's clerk, who evaded the operation, and is now apparently suffering the penalty. None of the balance of the personnel showed any evidence of having contracted the disease, although many of them must no doubt have been exposed to the same infection. The vessel was remanded to the Mariveles quarantine station for treatment. ("Medical Record," March 2, 1907, p. 363.)

THE SUPREME COURT OF MASSACHUSETTS ON THE POWER
TO EXCLUDE UNVACCINATED CHILDREN FROM SCHOOLS
WHEN SMALLPOX IS PREVALENT.

HAMMOND, p. p. a., *v.* TOWN OF HYDE PARK.

NORFOLK.

MARCH 1, 1907.

Exclusion of Pupils from School, — Compulsory Vaccination.

Two actions of tort, brought to recover damages on account of the exclusion of Mary D. and J. Forest Hammond from the public schools of Hyde Park. In the Superior Court, Hitchcock, J., directed verdicts for the plaintiffs, and reported the case to the Supreme Judicial Court.

Thomas E. Grover and Joseph P. Fagan for plaintiffs.

James E. Cotter and J. W. Pickering for defendant.

KNOWLTON, C.J.—Each of the plaintiffs was suspended from one of the public schools of the defendant town because of a refusal to be vaccinated at a time when smallpox was prevalent in the town. A short time before the suspension the school committee made a regulation, as follows: “Voted, to exclude from attendance all unvaccinated children, and also all children who do not present a certificate of revaccination as required by the board of health, until such time as this committee may become satisfied that the imminent danger from smallpox in our town has ceased.”

Our statutes give the school committee of a town “general charge and superintendence of all public schools,” etc. (R. L., c. 42, § 27.) This power is broad and ample. For the promotion of the best interests of pupils and of all the people, it necessarily has been construed broadly by the court. (Roberts *v.* Boston, 5. Cush. 198; Sherman *v.* Charlestown, 8 Cush. 160; Spiller *v.* Woburn, 12 Allen, 127; Morse *v.* Ashley, 192 Mass. [79 N. E. Rep. 481].)

By R. L., c. 44, § 3, children are given the right to attend the public schools, “subject to such reasonable regulations as to the numbers and qualifications of pupils to be admitted to the respective schools, and as to other school matters, as the school committee shall from time to time prescribe.” We have no doubt that the condition of pupils, in reference to the risk of exposing other pupils in the school to a contagious disease, is to be considered in making regulations as to their qualifications for admission to the school. In Sherman *v.* Charlestown, 8 Cush. 160, it was held that the school committee may exclude from the public schools a child whom they deem to be of a licentious and immoral character,

although such character is not manifested by any acts of licentiousness or immorality within the school. In giving the opinion Chief Justice Shaw used these words: "Take the case of a contagious disease. Can it be doubted that the presence of a pupil infected could be lawfully prohibited, not for any fault, or crime, or wrong conduct, but simply because his attempt to insist on his right to attend under such circumstances would be dangerous and noxious, and was an interruption of the equal common right?" So, if one who never had been vaccinated should refuse to be vaccinated in accordance with a lawful order of the board of health, when an epidemic of that disease was prevalent in the neighborhood, the same reasoning would apply. (See *Com. v. Jacobson*, 183 Mass. 242; S. C. 197 U. S. 11.)

In R. L., c. 44, § 6, we find this language: "A child who has not been vaccinated shall not be admitted to a public school, except upon presentation of a certificate signed by a regular practicing physician that he is not a fit subject for vaccination." Each of these plaintiffs presented such a certificate. It appeared that it was given without an examination of either of them; and the daughter of the physician testified, he having deceased, that her father was a member of what is called the Anti-Vaccination Society, and it was his opinion that nobody was a fit subject for vaccination, and he would give a certificate to anybody who applied for it that that person was not a fit subject for vaccination.

The judge instructed the jury as follows: "The statutes seem to provide that the school committee may exclude from the public schools children who have not been vaccinated, except such as present certificates from a practicing physician that they are unfit subjects for vaccination. The plaintiffs in these cases have presented certificates, which the court rules were sufficient in point of form, that they are or were unfit subjects for vaccination. That having been done, the school committee have no authority under the laws of this Commonwealth to exclude such children from the public schools." He then ordered verdicts for the plaintiffs, and reported the cases for the determination of this court.

The question on this instruction is, whether the statute which absolutely forbids the admission of an unvaccinated child to a public school at any time, without a certificate from a physician, is an implied enactment that, with a certificate, such a child shall be permitted to attend at all times, even when smallpox is raging in the neighborhood. We see nothing to indicate such an intention on the part of the Legislature. This is a prohibition of attendance at any time except upon a condition. There is an implication that, with the certificate, such a child properly may be permitted to attend when there is no particular reason to apprehend danger; but it was not intended to take away from the school com-

mittee the power to make proper regulations for the protection of all the pupils, if the prevalence of smallpox seems to require special precautions. The ruling of the court was wrong.

By the terms of the report made at the request of the parties, such entry is "to be made in each case as law and justice may require." It is expressly admitted that the school committee acted in good faith. The uncontradicted evidence shows that smallpox had been prevailing in the neighborhood for several weeks, that a temporary hospital had been established in the town, that the people of the town generally were being vaccinated, that the board of health had given notice that free vaccination would be given, and two thousand or three thousand vaccinations had been performed under the direction of the board.

It has been held repeatedly that the "decision of a school committee of a city or town, acting in good faith in the management of the schools upon matters of fact directly affecting the good order and discipline of the schools, is final, so far as it relates to the rights of pupils to enjoy the privileges of the school." (*Watson v. Cambridge*, 157 Mass. 561; *Hodgkins v. Rockport*, 105 Mass. 127; *Spiller v. Woburn*, 12 Allen, 127; *Alvord v. Chester*, 180 Mass. 20.) Whether this rule should be applied to such a regulation as appears in the present case, it is not necessary to decide, for, upon the undisputed facts, the regulation was reasonable.

As soon as the crisis had passed the committee relieved the plaintiffs from suspension and allowed them to return to the schools. There is no evidence that there was anything objectionable in the manner of enforcement of the regulation. There is no contention that the plaintiffs were not given a proper hearing as to their claim of right to attend the schools. (See *Bishop v. Rowley*, 165 Mass. 460; *Morrison v. Lawrence*, 186 Mass. 456.)

We see no ground on which a verdict properly could be found against the defendant. Law and justice require, under the terms of the report, that there should be an entry in each case of —

Judgment for the defendant.

MONTHLY BULLETIN



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STATE BOARD OF HEALTH
OF
MASSACHUSETTS.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING MARCH 2, 1907.

CITIES AND TOWNS.	Population ¹ Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fections Dis- eases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	225	58	37	46	20	6	—	—
Worcester,	132,240	47	13	7	11	4	2	—	—
Fall River,	106,123	48	24	10	14	2	—	—	—
Cambridge,	99,745	34	5	6	7	6	—	—	—
Lowell,	96,380	44	16	7	16	6	—	—	—
Lynn,	80,743	26	3	3	3	2	1	—	—
New Bedford,	79,744	28	6	6	5	2	1	—	—
Springfield,	78,707	27	5	1	6	1	—	—	—
Lawrence,	76,000	36	16	12	4	5	1	—	—
Somerville,	72,581	24	8	1	3	—	—	—	—
Holyoke,	51,730	14	2	1	3	1	—	—	—
Brockton,	51,289	16	5	3	1	2	—	—	—
Malden,	39,941	12	4	3	4	3	—	—	—
Chelsea,	38,659	9	4	—	1	—	—	—	—
Salem,	38,316	10	3	2	1	2	—	—	—
Newton,	38,209	9	4	5	—	1	4	—	—
Haverhill,	38,095	12	2	1	2	1	—	—	—
Fitchburg,	33,636	8	3	—	2	—	—	—	—
Everett,	31,274	7	1	3	—	2	—	—	—
Taunton,	30,967	23	4	2	5	1	—	—	—
Quincy,	29,944	7	—	2	1	1	—	—	—
Waltham,	27,493	9	1	—	2	—	—	—	—
Pittsfield,	26,425	11	3	—	3	—	—	—	—
Gloucester,	26,011	—	—	—	—	—	—	—	—
Brookline,	25,003	6	—	2	—	—	2	—	—
North Adams,	22,150	11	1	2	2	—	—	—	—
Chicopee,	20,615	11	4	4	3	3	—	—	—
Northampton,	20,508	12	1	2	1	1	—	—	1
Medford,	20,294	12	2	1	3	—	—	—	—
Beverly,	15,794	4	—	1	—	1	—	—	—
Leominster,	15,139	4	1	—	1	—	—	—	—
Hyde Park,	15,050	4	0	—	—	—	—	—	—
Melrose,	14,867	2	1	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	2	1	—	—	—	—	—	—
Marlborough,	14,263	4	0	1	—	1	—	—	—
Westfield,	14,169	5	1	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	7	1	1	—	—	—	—	—
Attleborough,	13,294	4	2	—	—	—	—	—	—
Clinton,	13,105	3	1	—	—	—	—	—	—
Adams,	13,072	1	—	1	—	—	—	—	—
Gardner,	12,528	4	3	1	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	1	—	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	8	1	—	3	—	—	—	—
Framingham,	11,648	4	2	—	—	—	—	—	—
Southbridge,	11,416	3	1	1	1	1	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,232,713	798	213	127	154	71	14	1	—
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING MARCH 9, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Rhinitis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	262	57	47	39	36	3	-	-
Worcester,	132,240	45	12	6	9	1	1	-	-
Fall River,	106,123	37	12	8	4	4	2	-	-
Cambridge,	99,745	29	9	4	3	4	2	-	-
Lowell,	96,380	34	6	7	5	4	2	-	-
Lynn,	80,743	30	9	5	5	4	2	-	-
New Bedford,	79,744	31	10	4	5	4	2	-	-
Springfield,	78,707	21	5	2	2	2	2	-	-
Lawrence,	76,000	28	5	2	5	4	2	-	-
Somerville,	72,581	27	6	5	5	4	2	-	-
Holyoke,	51,730	15	10	5	5	4	2	-	-
Brockton,	51,289	7	1	2	1	2	1	-	-
Malden,	39,941	12	4	3	1	3	2	-	-
Chelsea,	38,659	14	4	3	3	2	1	-	-
Salem,	38,316	13	5	-	-	-	-	-	-
Newton,	38,209	7	4	2	2	1	1	-	-
Haverhill,	38,095	22	5	6	3	3	1	-	-
Fitchburg,	33,636	6	2	-	-	-	-	-	-
Everett,	31,274	10	1	3	1	3	-	-	-
Taunton,	30,967	11	-	2	5	2	-	-	-
Quincy,	29,944	7	-	-	-	1	-	-	-
Waltham,	27,493	2	-	-	-	-	-	-	-
Pittsfield,	26,425	-	-	-	-	-	-	-	-
Gloucester,	26,011	6	2	-	-	-	-	-	-
Brookline,	25,003	4	-	-	-	-	-	-	-
North Adams,	22,150	9	1	3	2	2	1	-	-
Chicopee,	20,615	7	6	-	-	-	-	-	-
Northampton,	20,508	11	2	-	-	-	-	-	-
Medford,	20,294	9	1	2	-	-	-	2	-
Beverly,	15,794	11	-	2	1	1	1	1	-
Leominster,	15,139	5	2	3	3	1	-	-	-
Hyde Park,	15,050	5	-	1	1	-	-	-	-
Melrose,	14,867	3	-	-	-	1	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	4	-	-	2	-	-	-	-
Marlborough,	14,263	3	-	-	-	-	-	-	-
Westfield,	14,169	5	-	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	5	-	-	-	-	-	-	-
Attleborough,	13,294	9	-	1	1	1	-	-	-
Clinton,	13,105	3	0	2	2	1	-	2	-
Adams,	13,072	2	-	1	-	-	-	-	-
Gardner,	12,528	-	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	0	-	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	3	0	2	1	2	-	-	-
Framingham,	11,648	5	1	-	-	-	-	-	-
Southbridge,	11,416	7	-	1	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns,	2,219,771	786	195	134	115	79	14	5	-
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WEEK ENDING MARCH 16, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—						
				Principal Infectious Diseases.	Acute Lungs Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Menses.	
Boston,	609,761	265	47	48	49	33	2	—	—	—
Worcester,	132,240	52	13	9	10	4	2	—	—	—
Fall River,	106,123	46	16	8	15	3	—	—	—	—
Cambridge,	99,745	24	7	2	6	—	1	—	—	—
Lowell,	96,380	48	20	7	6	4	1	—	—	1
Lynn,	80,743	23	4	1	4	—	—	—	—	—
New Bedford,	79,744	29	19	3	11	2	—	—	—	—
Springfield,	78,707	24	3	3	5	2	1	—	—	—
Lawrence,	76,000	29	9	7	7	4	1	—	—	—
Somerville,	72,581	23	3	3	7	1	—	—	—	—
Holyoke,	51,730	16	6	2	3	2	—	—	—	—
Brockton,	51,289	17	1	3	—	2	—	—	—	—
Malden,	39,941	13	2	2	2	1	—	—	—	—
Chelsea,	38,659	12	6	2	—	—	—	—	1	—
Salem,	38,316	13	2	1	2	1	—	—	—	—
Newton,	38,209	14	1	2	3	1	1	—	—	—
Haverhill,	38,095	18	4	2	6	1	—	—	—	—
Fitchburg,	33,636	8	2	1	2	1	—	—	—	—
Everett,	31,274	11	5	1	—	—	—	—	—	—
Taunton,	30,967	8	5	1	3	1	—	—	—	—
Quincy,	29,944	—	—	—	—	—	—	—	—	—
Waltham,	27,493	9	3	4	2	3	—	—	—	—
Pittsfield,	26,425	12	2	1	2	1	—	—	—	—
Gloucester,	26,011	3	1	—	—	—	—	—	—	—
Brookline,	25,003	—	—	—	—	—	—	—	—	—
North Adams,	22,150	5	0	—	—	2	—	—	—	—
Chicopee,	20,615	4	1	1	—	—	1	—	—	—
Northampton,	20,508	6	1	—	—	—	—	—	—	—
Medford,	20,294	4	—	—	—	—	—	—	—	—
Beverly,	15,794	2	1	—	—	—	—	—	—	—
Leominster,	15,139	7	2	—	—	2	—	—	—	—
Hyde Park,	15,050	2	—	—	—	—	—	—	—	—
Melrose,	14,867	5	0	1	3	1	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	7	1	1	3	—	—	—	—	—
Marlborough,	14,263	5	2	1	—	—	—	—	—	—
Westfield,	14,169	6	—	—	1	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	6	1	2	2	1	1	—	—	—
Attleborough,	13,294	6	1	—	—	—	—	—	—	—
Clinton,	13,105	2	0	—	—	—	—	—	—	—
Adams,	13,072	3	—	1	—	—	—	—	—	—
Gardiner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—	—
Watertown,	11,946	3	0	1	—	—	1	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	5	1	2	1	1	1	—	—	—
Framingham,	11,648	2	1	—	—	—	—	—	—	—
Southbridge,	11,416	2	2	1	—	—	—	—	1	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,191,249	799	195	124	161	72	11	1	1
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WEEK ENDING MARCH 23, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	231	54	40	46	27	2	—	—	—
Worcester,	132,240	56	14	13	9	6	2	2	1	—
Fall River,	106,123	27	7	8	10	5	—	—	—	—
Cambridge,	99,745	33	11	3	4	2	—	—	—	—
Lowell,	96,380	44	10	7	9	4	2	2	1	—
Lynn,	80,743	36	7	3	6	2	—	—	—	—
New Bedford,	79,744	29	10	7	4	4	—	—	—	—
Springfield,	78,707	22	6	3	3	2	—	—	—	—
Lawrence,	76,000	44	15	6	11	2	1	—	2	—
Somerville,	72,581	20	6	2	3	2	—	—	—	—
Holyoke,	51,730	17	10	3	3	1	—	—	—	—
Brockton,	51,289	15	2	3	4	3	—	—	—	—
Malden,	39,941	7	—	—	3	—	—	—	—	—
Chelsea,	38,659	10	2	—	—	—	—	—	—	—
Salem,	38,316	9	5	—	—	—	—	—	—	—
Newton,	38,209	8	2	—	—	—	—	—	—	—
Haverhill,	38,095	11	1	1	3	1	—	—	—	—
Fitchburg,	33,636	—	—	—	—	—	—	—	—	—
Everett,	31,274	3	3	1	—	—	—	—	—	—
Taunton,	30,967	7	1	2	1	2	—	—	—	—
Quincy,	29,944	12	5	—	2	—	—	—	—	—
Waltham,	27,493	5	—	3	—	—	2	1	—	—
Pittsfield,	26,425	—	—	—	—	—	—	—	—	—
Gloucester,	26,011	11	1	2	—	—	—	1	—	—
Brookline,	25,003	9	3	2	2	2	2	2	—	—
North Adams,	22,150	9	0	2	3	1	1	1	—	—
Chicopee,	20,615	12	8	3	3	1	1	1	—	—
Northampton,	20,508	8	1	2	—	—	—	2	—	—
Medford,	20,294	7	—	3	—	—	1	1	1	—
Beverly,	15,794	4	1	1	—	—	—	—	—	—
Leominster,	15,139	2	2	1	1	—	—	1	—	—
Hyde Park,	15,050	5	—	—	2	—	—	—	—	—
Melrose,	14,867	2	0	1	—	—	1	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	3	—	—	—	1	—	—	—	—
Marlborough,	14,263	4	3	1	—	—	—	—	—	—
Westfield,	14,169	5	—	1	—	—	—	—	—	1
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	2	—	—	1	—	—	—	—	—
Attleborough,	13,294	5	0	—	1	—	—	—	—	—
Clinton,	13,105	4	1	—	1	—	—	—	—	—
Adams,	13,072	6	3	3	—	—	1	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—	—
Watertown,	11,946	2	0	—	2	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	3	1	1	—	—	—	—	1	—
Framingham,	11,648	5	—	—	—	—	—	2	—	—
Southbridge,	11,416	4	1	2	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,186,135	758	196	130	140	74	17	4	—
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WEEK ENDING MARCH 30, 1907.

CITIES AND TOWNS.	Population-Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—					
				Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	234	57	29	46	15	1	—	—
Worcester,	132,240	46	10	10	1	5	1	—	—
Fall River,	106,123	45	15	7	10	1	—	—	—
Cambridge,	99,745	23	2	5	7	5	—	—	—
Lowell,	96,380	37	8	5	6	1	—	—	—
Lynn,	80,743	25	6	3	6	4	—	—	—
New Bedford,	79,744	32	10	11	7	4	—	—	—
Springfield,	78,707	29	8	3	5	3	—	2	—
Lawrence,	76,000	32	4	6	3	3	—	—	—
Somerville,	72,581	23	5	2	4	2	—	—	—
Holyoke,	51,730	32	12	2	4	1	—	—	—
Brockton,	51,289	9	4	1	2	1	—	—	1
Malden,	39,941	9	2	1	2	1	—	—	—
Chelsea,	38,659	21	6	2	—	2	—	—	—
Salem,	38,316	17	4	1	2	1	—	—	—
Newton,	38,209	8	3	1	—	—	—	—	—
Haverhill,	38,095	10	4	4	2	2	—	—	—
Fitchburg,	33,636	8	4	—	2	—	—	—	—
Everett,	31,274	10	3	2	—	—	—	—	—
Taunton,	30,967	12	2	—	1	1	—	—	—
Quincy,	29,944	5	—	—	1	—	—	—	—
Waltham,	27,493	6	—	—	1	—	—	—	—
Pittsfield,	26,425	6	1	—	—	—	—	—	—
Gloucester,	26,011	—	—	—	—	—	—	—	—
Brookline,	25,003	7	1	2	—	2	—	—	—
North Adams,	22,150	7	1	1	—	1	—	—	—
Chicopee,	20,615	13	2	4	2	4	—	—	—
Northampton,	20,508	8	1	1	—	1	—	—	—
Medford,	20,294	6	1	1	3	—	—	—	—
Beverly,	15,794	6	—	3	—	1	—	—	1
Leominster,	15,139	5	3	1	—	—	—	—	—
Hyde Park,	15,050	2	1	1	—	1	—	—	—
Melrose,	14,867	6	2	2	—	2	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	—	—	—	—	—	—	—	—
Marlborough,	14,263	4	1	1	—	1	—	—	—
Westfield,	14,169	3	1	1	1	1	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	6	1	2	1	1	—	—	—
Attleborough,	13,294	4	2	—	—	—	—	—	—
Clinton,	13,105	2	1	—	—	—	—	—	—
Adams,	13,072	—	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	5	3	1	1	1	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	2	0	—	—	—	—	—	—
Framingham,	11,648	5	—	—	—	—	—	—	—
Southbridge,	11,416	1	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, .	2,192,651	771	191	115	120	68	6	4	1
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WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS DISEASES.

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN ABOVE TABLES DURING THE WEEKS OF MARCH 2, 9, 16, 23 AND 30, 1907.

DISEASE.	Place.	WEEK ENDING —				
		Mar. 2.	Mar. 9.	Mar. 16.	Mar. 23.	Mar. 30.
Cerebro-spinal meningitis,	Adams, . . .	1	-	-	1	-
	Attleborough, . . .	-	1	-	-	-
	Beverly, . . .	-	-	-	1	-
	Boston, . . .	3	4	3	5	6
	Chelsea, . . .	-	1	1	-	-
	Everett, . . .	-	-	1	-	-
	Fall River, . . .	-	-	-	1	-
	Gloucester, . . .	-	-	-	1	-
	Lynn, . . .	-	3	-	-	-
	Malden, . . .	-	-	1	-	-
	Medford, . . .	-	-	-	1	-
	New Bedford, . . .	1	-	1	-	2
	Revere, . . .	1	-	-	-	-
	Weymouth, . . .	-	72	1	-	-
	Worcester, . . .	1	3	2	2	4
Erysipelas,	Boston, . . .	1	2	2	1	2
	Cambridge, . . .	-	-	1	-	-
	Lowell, . . .	-	1	-	-	-
	Quincy, . . .	-	1	-	-	-
	Taunton, . . .	-	-	-	-	1
Scarlet fever,	Beverly, . . .	-	-	-	-	1
	Boston, . . .	2	-	-	-	3
	Brockton, . . .	1	-	1	-	-
	Chicopee, . . .	1	-	-	1	-
	Everett, . . .	-	-	-	1	-
	Fall River, . . .	-	-	-	1	-
	Gardner, . . .	1	-	-	-	-
	Haverhill, . . .	-	-	1	-	-
	Leominster, . . .	-	-	-	-	1
	Lynn, . . .	1	-	1	-	-
	Melrose, . . .	-	1	-	-	-
	Quincy, . . .	1	-	-	-	-
	Springfield, . . .	-	1	-	-	-
	Waltham, . . .	-	-	1	-	-
	Worcester, . . .	-	-	1	-	-
Whooping cough,	Boston, . . .	1	1	1	2	1
	Cambridge, . . .	-	-	-	1	-
	Everett, . . .	1	-	-	-	-
	Haverhill, . . .	-	1	-	-	2
	Lowell, . . .	-	-	1	-	-
	Marlborough, . . .	-	-	1	1	-
	Newton, . . .	-	1	-	-	-
	Springfield, . . .	-	-	-	1	-
	Worcester, . . .	-	-	-	1	-

DISEASE.	Place.	WEEK ENDING—				
		Mar. 2.	Mar. 9.	Mar. 16.	Mar. 23.	Mar. 30.
Influenza,	Adams, . . .	—	—	1	1	—
	Haverhill, . . .	—	1	—	—	—
	Leominster, . . .	—	1	—	—	—
	Medford, . . .	1	—	—	—	—
Malaria,	Boston, . . .	—	—	1	—	—

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF MARCH
2, 9, 16, 23 AND 30, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

		WEEK ENDING—				
		Mar. 2.	Mar. 9.	Mar. 16.	Mar. 23.	Mar. 30.
Diphtheria,		199	168	160	187	147
Measles,		67	84	153	83	174
Scarlet fever,		186	230	190	186	185
Typhoid fever,		43	42	42	62	17
Tuberculosis,		43	54	73	80	102
Cerebro-spinal meningitis,		6	11	3	11	13
Erysipelas,		—	3	2	1	—
Whooping cough,		4	9	—	6	1
Chicken pox,		—	9	—	—	—
Smallpox,		—	1	—	1	22

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of March, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Asparox (asparagus extract), .	—	1	1	Maple syrup, .	1	9	10
Butter, . . .	5	1	6	Meat products:—			
Canned soup, .	—	1	1	Canned meat, .	3	—	3
Canned vegetables,	2	—	2	Hamburg steak,	6	2	8
Cider, . . .	5	2	7	Head cheese, .	2	—	2
Clams and oysters,	6	—	6	Minced meat, .	—	2	2
Cocoa, . . .	2	1	3	Sausages, .	18	2	20
Coffee, . . .	2	—	2	Milk, . . .	85	126	211
Cream, . . .	2	—	2	Pickles, . . .	2	3	5
Drugs, . . .	47	17	64	Salad dressing, .	3	3	6
Flavoring extracts,	2	—	2	Saleratus, .	1	—	1
Gluten, . . .	1	—	1	Shrimps, . . .	1	4	5
Honey, . . .	9	—	9	Shrimp paste, .	—	1	1
Horseradish, .	7	1	8	Spices, . . .	8	—	8
Jams and jellies,	11	2	13	Syrups, . . .	1	—	1
Lobster paste, .	—	1	1	Table sauce, .	12	1	13
Maple sugar, .	1	5	6	Total, . . .	245	185	430

The samples of drugs found to be adulterated were: spiritus camphoræ, spiritus frumenti, and several proprietary preparations.

The cities and towns in which samples were collected were: Arlington, Attleborough, Boston, Brookline, Brockton, Cambridge, Dedham, Everett, Fall River, Gloucester, Haverhill, Hyde Park, Holyoke, Lowell, Lynn, Malden, Mansfield, Melrose, Milton, Quincy, Salem, Somerville, Springfield, Upton, Waltham, Watertown, Waverley, Weston, Westborough and Worcester.

**PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING
TO FOOD AND DRUGS.**

Thirty-three convictions were secured during the month of March, 1907, for selling adulterated food and drugs, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	A. G. Van Nostrand,	Boston,	Ale.
2	A. G. Van Nostrand,	Boston,	Ale.
3	A. G. Van Nostrand,	Boston,	Ale.
4	A. G. Van Nostrand,	Boston,	Ale.
5	A. G. Van Nostrand,	Boston,	Ale.
6	A. G. Van Nostrand,	Boston,	Ale.
7	A. G. Van Nostrand,	Boston,	Ale.
8	A. G. Van Nostrand,	Boston,	Ale.
9	A. G. Van Nostrand,	Boston,	Ale.
10	A. G. Van Nostrand,	Boston,	Porter.
11	Charles L. Oumret,	Lowell,	Butter (renovated).
12	Charles W. Mitchell,	Boston,	Spirits camphor.
13	William H. Stanton,	Boston,	Spirits comphor.
14	J. Mano Harriman,	Lynn,	Gem Catarrh Powder. ¹
15	J. Mano Harriman,	Lynn,	Gem Catarrh Powder. ¹
16	James McDonald,	Lowell,	Armour's Helmet Brand Deviled Ham.
17	Morris Burg,	Boston,	Hamburg steak.
18	Victor Guanzani,	Boston,	Hamburg steak.
19	John J. Stack,	Lowell,	Hamburg steak.
20	Albert Stott,	Lowell,	Hamburg steak.
21	Alemann Filippi,	Dorchester,	Maple sugar.
22	Alemann Filippi,	Dorchester,	Maple sugar.
23	William W. Calder,	Fall River,	Milk (total solids, 11.44).
24	Walter E. Peckham,	Fall River,	Milk (total solids, 11.60).
25	Job C. Sabens,	Fall River,	Milk (total solids, 11.75).
26	Ralph Van Wagner,	Warren,	Milk (total solids, 11.27).
27	Martin J. Whalen,	Gloucester,	Milk, colored with annatto.
28	Amendee Tousignant,	Lowell,	Sausage (Frankfurts).
29	Geo. E. Clark,	Lowell,	Sausage (Vienna).
30	Edward Chevalier,	Lowell,	Salad dressing.
31	John Cuttle (manager), P. N. Fitzpatrick Co.	Malden,	Shrimp.
32	Oswald Bertrand,	Lowell,	Shrimp.
33	John C. McNaught,	Lowell,	Shrimp.

Fines imposed, \$946.

¹ Contained cocaine.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR MARCH, 1907.

Number of Sample.	Character of Sample.	Brand, or Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.					
			1	2	3	4	5	6
5188	Milk,	G. Herbert Thurston, Haverhill,	.	.	.	.	.	.
5201	Milk,	Leslie F. Amero, Gloucester,	.	.	.	.	.	.
5202	Milk,	.	.	.	.	.	.	.
5225	Milk,	.	.	.	.	.	.	.
5226	Milk,	.	.	.	.	.	.	.
5228	Milk,	.	.	.	.	.	.	.
5229	Milk,	.	.	.	.	.	.	.
5230	Milk,	.	.	.	.	.	.	.
5231	Milk,	Moses W. Thompson, Merrimac,	.	.	.	.	.	.
5232	Milk,	.	.	.	.	.	.	.
5233	Milk,	.	.	.	.	.	.	.
5234	Milk,	.	.	.	.	.	.	.
5235	Milk,	.	.	.	.	.	.	.
5236	Milk,	.	.	.	.	.	.	.
7975 N	Milk,	J. F. Silva, Fall River,	.	.	.	.	.	.
3300 M	Milk,	J. C. Sabins, Fall River,	.	.	.	.	.	.
3548 M	Milk,	Joseph A. Dennis, Fall River,	.	.	.	.	.	.
5324	Tomato soup,	Van Camp Packing Company, Indianapolis,	.	.	.	.	.	.
3434 M	Cider,	Leicester Polar Spring Company,	.	.	.	.	.	.
3388 M	"As you like it" horseradish.	U. S. Horseradish Company, Saginaw, Mich.,	.	.	.	.	.	.
5163	"A sparox," "A beverage for seasoning,"	Armour & Co., Chicago, Ill.,	.	.	.	.	.	.
5206	Mince-meat,	George Itut, Lynn,	.	.	.	.	.	.
5238	Sweet mixed pickles,	Lutz & Schramm Company, Allegheny, Pa.,	.	.	.	.	.	.
5260	Pearl onions,	Williams Bros. Company, Detroit, Mich.,	.	.	.	.	.	.
5271	Sweet relish, "Wilco" brand.	Gem Gataarr Powder,	.	.	.	.	.	.
5005	Gem Medicine Company, Boston,	Contained cocaine.	.	.	.	.	.	.

Preserved with salicylic acid.

Preserved with benzoic acid.

Preserved with benzoic acid.

Preserved with benzoic acid.

Mixture of sugar, malic acid and carbonated water.
Large admixture of cornstarch.

INSPECTION OF DAIRIES.

During the month of March, 1907, 210 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent	Per Cent.
Berkley,	8	2	25.00	6	75.00
Dighton,	2	1	50.00	1	50.00
Dover,	26	9	34.62	17	65.38
Fall River,	54	17	31.48	37	68.52
Freetown,	7	-	-	7	100.00
Needham,	24	7	29.17	17	70.83
Rehoboth,	5	1	20.00	4	80.00
Somerset,	22	2	9.09	20	90.91
Swansea,	45	19	42.22	26	57.78
Westport,	16	9	56.25	7	43.75
Westwood,	1	-	-	1	-

The names of the owners of the dairies found to be worthy of commendation follow:—

Berkeley-

Farr, Thomas

Haynes Howard

Diahatsu

Horton, H. L.

Dorcer.

Battele, J. S.

Battelle, W. B.

Beldon, C. M.

Comiskey, M. W.

Hanchett, H.

Howard, L. S.

Minet, Robert S.

Porter, (Dr.) W. T.

Thompson, G. H.

Fall River.

Amiot, Joseph E.
Baissonneau, Elzear
Ford, Jane T.
Goodrum, William P.
Hambly, William H.
Keiron, Albert

Kennedy, John T.
Lamontagne, C.
Lemay, Joseph
Paternande, John H.
Snyder, James O.
Soule, Mrs. H. A.

Souza, Joseph
Talbot, Pierre
Thurston, A. W.
Watson, Henry
Whalen, Andrew

Needham.

Kingsbury, George H.
Pope, Arthur W.

Tuck, G. R.
Walker-Gordon Company

Whitaker, Mrs. A.
Wills, George
Wright, Mrs. George

Rehoboth.

Buffington, John M.

Somerset.

Denham, Calvin E.

Gray, William

Swansea.

Chace, Andrew
Chace, Charles L.
Chace, Leroy
Ferriz, Manuel
Hayes, George H.
Kingsley, C. E.

Lawton, John E.
Lewis, George
Macomber, J. W.
Maxim, William H.
Sherman, Mrs. J. W.
Silva, Manuel J.

Simcock, James B.
Swansea Town Farm
Swanson, P.
Trudell, Jacob
Walsh, Edward T.
Weaver, A. W.
Williams, Charles

Westport.

Allen, Asa B.
Cornell, Everett P.
Gifford, Robert A.

King, Stephen
Mosher, F. A.
Perry, Manuel

Pettey, T. A.
Tripp, Theophilus S.
Tripp, Wilbur W.

RESOLUTIONS REGARDING THE MILK SUPPLY.

[From "Medical Record," March 30, 1907.]

The Section on Public Health of the New York Academy of Medicine passed the following resolution at its meeting of March 12, and this resolution was adopted by the Academy at its meeting on March 21:—

Resolved: (1) That the Section on Public Health of the New York Academy of Medicine does not believe in the necessity of the compulsory pasteurization of all of the milk supply of New York City, but recommends for the present to all those whose milk supply cannot be proven to be thoroughly inspected and wholesome, and mainly the milk destined for the feeding of infants unless it is "certified," to boil their milk when delivered in the morning for three minutes. (2) That the health of the city of New York demands a persistence in the policy of supervision of farms, dairies and creameries, supervision of the milk during transit and on delivery in the city, and supervision at the points of distribution in the city to the consumer, whether the milk that is distributed has been pasteurized or not. (3) That local and State health authorities and the Bureau of Animal Industry of the United States Department of Agriculture should co-operate with milk producers to prevent the occurrence of communicable disease in cattle and their caretakers. (4) That the Section on Public Health recom-

mends that the New York Academy of Medicine adopt the above resolutions, and that a copy be sent to the members of the Committee on Public Health of the Board of Aldermen, to the Committee of the New York State Legislature having under consideration the Reece bill, and to the medical and the lay press.

PROPRIETARY PREPARATIONS ADVERTISED DURING MARCH, 1907, AS UNSALABLE AT RETAIL.

Gem Catarrh Powder, Gem Medicine Company, Boston, Mass.
Rudolf's Kola Cardinette, Palisade Manufacturing Company, Yonkers,
N. Y.

THE CARNEY COMMON SENSE OPIATE CURE.

The Carney Common Sense Opium Cure, which was advertised on February 20 and 23 as unsalable at retail, and for the sale of which the originator was convicted a few days later, is dispensed in thirty-one bottles, thirty of which are numbered from 1 to 30; the remaining one, of much larger size, is marked "Emergency." The victim of the opium habit who wishes to be freed from taking the drng is advised, on paying from \$10 to \$15 for the outfit, to take the bottles in the order of their numbers, one each day; to throw away any unused portion of any day's supply, rather than carry it over to the next day; and, in case the amount provided for any one day fails to give the needed "support," to take a dose of the "emergency" bottle.

Analysis showed that each bottle contained a large dose of morphine. The "emergency" preparation contained three grains of morphine to the ouncee. The cure seems to consist in taking the drng. from the habit of taking which one seeks to be released, in satisfying doses.

DEATHS FROM OPIUM OR MORPHINE-CONTAINING PRO- PRIETARY PREPARATIONS.

STILL OTHER DEATHS FROM "KOPP'S BABY'S FRIEND."

[From "Journal of the American Medical Association," July 14, 1906.]

Dr. L. E. Siegelstein, Cleveland, coroner of Cuyahoga County, sends us a report of the following cases of poisoning from "Kopp's Baby's Friend," which occurred in Cleveland, March 27, 1906, and April 3, 1905:—

History of Recent Case.

For two nights prior to March 26, 1906, Irma, the two-months-old daughter of Mrs. Anna Vargo, an Austrian woman of average intelligence, residing at No. 35 Cumberland Street, Cleveland, had been unable to sleep. The child's mother, knowing that Mrs. Leszak, a neighbor living in the same house, always kept in her apartments a preparation known as "Kopp's Baby's Friend," borrowed some of it, and gave the baby a teaspoonful at 7 P.M. She never dreamed that such a small quantity would harm her infant in any way, but almost immediately after being given the dose the baby shivered, sank into a deep sleep or stupor, from which she never revived. At 8 P.M. the mother became alarmed at the long-continued sleep of the baby and her looks, and, being unable to rouse the child, took her to a doctor's office near by. The doctor was unable to revive the baby, which was taken back home by the mother. At 8.30 P.M., there being no change for the better in the baby's condition, the mother summoned the doctor, who came to the house at once. The doctor again departed without being able to bring the child out of the stupor. The baby's body was very cold. This condition continued until morning. The doctor called again in the morning. The baby was blue and her body was very cold. The doctor announced to the mother that the baby was dying, and could not live more than an hour longer. The baby died at about 10 o'clock A.M. The doctor at once reported the case at my office, and I began my investigation.

History of Previous Case.

I was greatly interested in this case, because I had had an almost similar case in April, 1905:—

Mr. E. P. Swan, 1227 Lexington Avenue, Cleveland, had received a small vial of "Kopp's Baby's Friend" by mail as a sample. Up until evening of April 3, 1905, his five-weeks-old baby had been in good health. At 8.30 P.M. on April 3 the baby was taken with colic. The father at once thought of the "Kopp's Baby's Friend" sample, and gave the infant six drops of the preparation at that time. At 12.30 A.M. that same night he gave the baby three drops more. The baby sank into a comatose condition, with stertorous breathing, dilated pupils and a bluish countenance or pallor. Early in the morning the alarmed parents summoned Dr. O. H. Boulee, who, after an examination, declared that the baby was evidently suffering from the effects of opium poisoning. He prescribed the usual antidote, with negative result. He then left the house, and half an hour later the baby was dead.

The Coroner's Experiments.

After the death of Irma Vargo I requested the city chemist to make an analysis of "Kopp's Baby's Friend," but have not yet received his report.

[In "The Journal," Nov. 25, 1905, we published a report of an analysis of this preparation. According to the analysis, "Kopp's Baby's Friend"

contains in the 100 c.c. 0.0719 gm. morphin sulphate, approximately one-third of a grain in one fluid ounce.—ED.]

In addition to taking testimony and investigating the case from all angles, I did some private experimental work with "Kopp's Baby's Friend." First, I gave a six-days-old puppy thirty drops of the preparation. The pup never awakened from the deep sleep that overcame him at once. I gave a two-weeks-old kitten twenty drops. She promptly went to sleep, and slept four hours. The next day I gave her thirty drops, which put her to sleep forever. I also tried the preparation on two kittens of six weeks old. Each slept for from four to eight hours after doses of from fifteen to twenty drops.

Coroner's Verdict.

THE STATE OF OHIO, CUYAHOGA COUNTY, ss.

Be it Remembered, That on the twenty-seventh day of March, A.D. 1906, information was given to me, L. E. Siegelstein, M.D., coroner of said county, that the dead body of a girl, supposed to have come to her death from violence, had been found at No. 35 Cumberland Street, in the city of Cleveland, O., County aforesaid, on the twenty-seventh day of March, 1906.

I visited the place and found the said dead body at No. 35 Cumberland Street. After viewing the same, and inquiring into the circumstances that caused the death of the said person, I summoned the following persons, to wit, Irma Leszak and Anna Vargo, to appear before me at my office, County Morgue, 213 Lake Street, at 9 o'clock A.M. on the third day of April, 1906. In obedience to said summons, the said persons appeared, and were sworn by me as witnesses.

I then proceeded to inquire in what manner and by whom the said person came to her death. Their testimony was taken by me and reduced to writing, and subscribed to by the several witnesses; and the same is hereto attached and fully appears, I having heard the testimony. I also carefully examined the said dead body on the twenty-eighth day of March, 1906, and find as follows, to wit:—

I, L. E. Siegelstein, M.D., coroner of said county, having diligently inquired, do true presentment make in what manner Irma Vargo, whose dead body was found by me at above place on the twenty-eighth day of March, 1906, came to her death. The said Irma Vargo was single, about two months of age, a resident of Cleveland, O., and a native of U. S. A.; had hazel eyes, black hair and fair complexion, and was about twenty-nine inches in height and of small weight.

Upon full inquiry concerning all the facts, I find that the said Irma Vargo came to her death on the twenty-seventh day of March, 1906, at No. 35 Cumberland Street, situated in the city of Cleveland, county and State aforesaid, from morphin poisoning, caused by a teaspoonful of a preparation sold under the name of "Kopp's Baby's Friend," which the mother gave the said Irma Vargo about 6 P.M. on March 26, 1906.

DEATH FROM CHAMBERLAIN'S COLIC, CHOLERA AND DIARRHEA REMEDY.

[From "Journal of the American Medical Association," March 2, 1907.]

Dr. W. C. Fulkerson, Marshall, Okla., reports a death from Chamberlain's Colic, Cholera and Diarrhea Remedy, self-administered. He states that according to the formula, which is now published under the food and drugs act, the remedy contains six grains of opium to the ounce.

ANOTHER DEATH FROM MRS. WINSLOW'S SOOTHING SYRUP.

[From "Journal of the American Medical Association," March 30, 1907.]

Dr. John M. Edwards, Commissioner of Health, Mankato, Minn., reports the death of Mary Veigel, aged eighteen months, from an overdose of Mrs. Winslow's Soothing Syrup. He writes:—

The undertaker came to my office for a burial permit for a child who had died, the parents said, of measles. The undertaker called my attention to the fact that the parents made a request for a burial permit worded that way. The coroner was called, and asked me to assist him in making an investigation. The child had been the youngest of a family of five, all of whom had measles. The child had been doing very well, so its mother said, until twelve hours before its death, when it became peevish and cross. At 8 A.M. she gave the child the first dose of Mrs. Winslow's Soothing Syrup. The child being fussy and fretful, the mother continued to give her this medicine until she had taken about half the contents of the bottle. About 2 or 3 o'clock in the afternoon the child died. I put down the chief cause of death as poisoning from Mrs. Winslow's Soothing Syrup, and the contributing cause as measles. As the child had been sick, her system was more or less undermined, and she fell an easy prey to the medicine.

I submitted the remaining part of the bottle which I took from the house to the laboratory of the State Board of Health, at St. Paul, and I have on file in my office the analysis of the contents, in which the chemist found morphin.

**PRELIMINARY REPORT OF THE STATE BOARD OF HEALTH
TO THE LEGISLATURE ON DRAWN AND UNDRAWN
COLD-STORAGE POULTRY.**

The Legislature of 1906 passed the following resolve:—

CHAPTER 59, RESOLVES OF 1906.

RESOLVE TO PROVIDE FOR A COMPARATIVE INVESTIGATION OF DRAWN AND UNDRAWN POULTRY WHEN SHIPPED OR STORED.

Resolved, That the state board of health is hereby directed to investigate what unwholesome changes, if any, take place in flesh of poultry shipped or

stored without the removal of the head, crop, and entrails, as compared with the flesh of poultry from which the same have been removed. For this purpose the board may expend a sum not exceeding three thousand dollars, and it shall report the result of its observations and conclusions to the next general court.

As soon as practicable after the passage of this resolve, three lots of fowl and ducks were purchased as material for the investigation. These were kept for several weeks under identical conditions as to housing, care and feed, and were then killed and prepared in the most careful manner for cold storage. The material obtained consisted of one lot of fifty ducks, which were given no food during the twenty-four hours prior to slaughter; one lot of one hundred fowls, similarly treated; and one lot of fifty fowls, to which was given a full meal of soft feed the night before slaughter. All of each lot were killed and prepared for storage on the same day; one-half were carefully and thoroughly drawn and dressed, and the rest were left undrawn. The individual birds were separately wrapped in paper and packed, and the whole of each lot were transported without delay and placed in a room of the Quincy Market Cold Storage and Warehouse Company, maintained at a temperature of about 0° F.

At the expiration of about two months, work was begun, the chemical side of the investigation being assigned to an expert physiological chemist of long experience and thorough training, and the bacteriological side to a bacteriologist and parasitologist of the same standing. The drawn and undrawn birds were removed from storage in equal numbers as occasion required, and each bird was submitted simultaneously to both chemical and bacteriological study. The results of the work thus far obtained warrant the following conclusions:—

1. During cold storage at from 15° below to 5° above 0° F. no chemical changes occur. This is shown by the absence in both the drawn and undrawn birds of ptomaines and decomposition products in general, and by negative reaction on the part of animals inoculated with extracts obtained from both kinds of material.
2. When removed from cold storage and exposed to ordinary temperatures, the condition of exposure being the same, the undrawn birds show better keeping qualities.
3. Freezing renders the muscular tissues more susceptible to bacterial invasion after they are thawed out.
4. The usual method of drawing poultry leads to heavy bacterial infection, which promotes more rapid decomposition than occurs in undrawn birds.
5. By ligature of the gullet below the crop, poultry can be completely

drawn without any spilling of the intestinal contents, with consequent bacterial invasion of the abdominal cavity; and poultry so drawn would undoubtedly withstand decomposition and deterioration much longer than that which is undrawn.

6. The practice of depositing poultry in cold-storage when in the beginning or advanced stages of decomposition, in order to save it, is dangerous to the health of the consumer, since when it is again withdrawn for sale its condition is unaltered.

7. Proper and adequate inspection of poultry as it enters cold-storage is desirable, and storage of material already in process of decomposition should be prohibited.

8. The practice of placing cold-storage poultry in cold water for a number of hours for the purpose of thawing causes heavy bacterial infection, and consequent more rapid decomposition than occurs when thawing is allowed to proceed slowly at room temperature. Such treatment causes also a material increase in weight, by reason of absorption by the tissues of water, to the detriment of the purse of the purchaser, and hence is fraudulent.

Several questions in connection with the subject of cold storage of poultry are still in process of investigation, the results of which will be submitted in the final report.

By order of the Board,

CHARLES HARRINGTON,

Secretary.

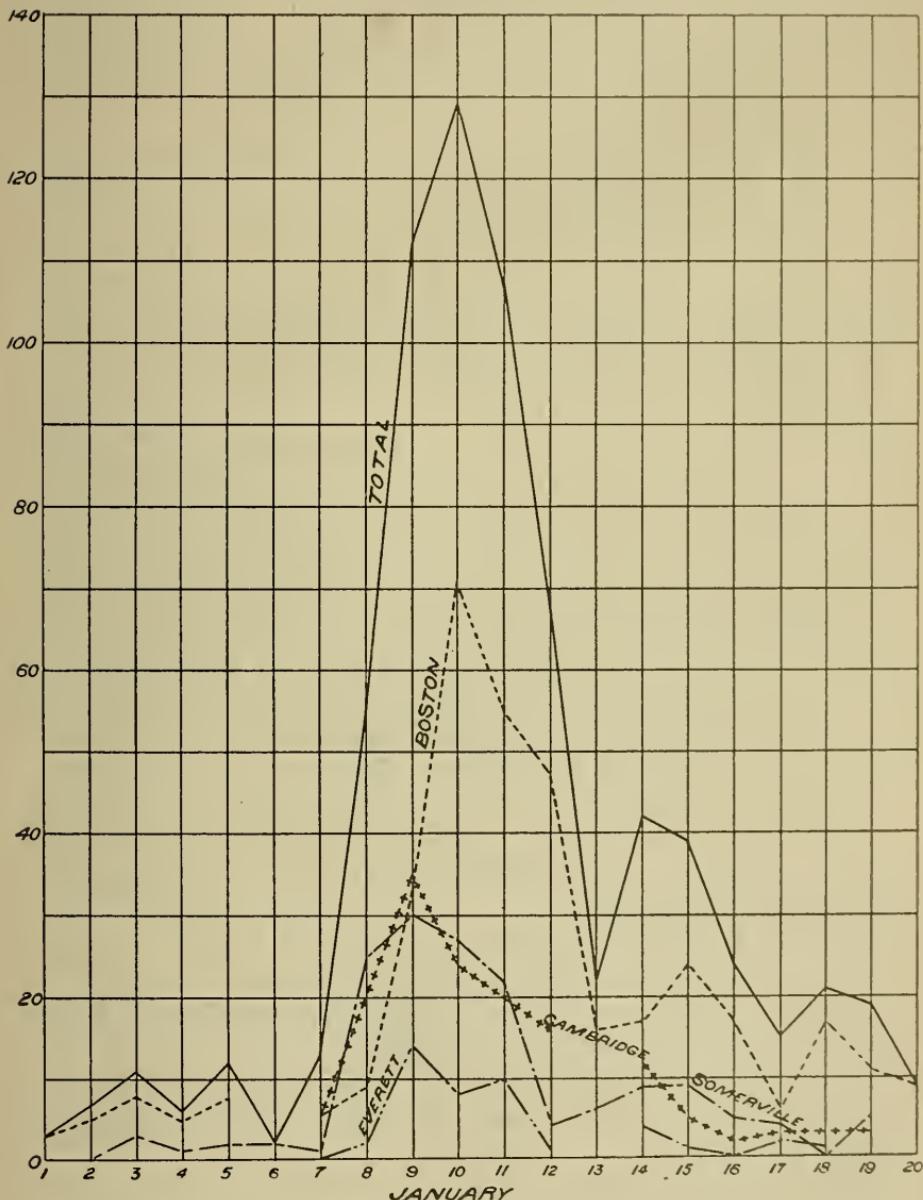
AN EPIDEMIC OF SCARLET FEVER IN BOSTON, CAMBRIDGE, SOMERVILLE AND EVERETT.

During the first twenty days of January, 1907, 717 cases of scarlet fever occurred in Boston, Cambridge, Somerville and Everett. Of these cases, 367 were in Boston, a number which overtaxed the accommodations for scarlet fever patients at the City Hospital for the first time since its erection; 152 cases occurred in Cambridge, 155 in Somerville and 43 in Everett. Of these cases, 485, or 67 per cent. of the total number, occurred within a period of six days, that is, January 7 to 12, inclusive.

The suddenness of the onset of the epidemic, the fact that the cases were not grouped together in any one locality nor in any one school, and the fact that several cases were reported, such as a mother and her newborn child, a family of children confined with measles, etc., in which ordinary exposure to other scarlet fever cases was impossible, or at least most improbable, immediately suggested a common source of infection. An investigation of the milk supply of the cases showed that one large

milk concern supplied families in all four of these cities. A further investigation showed that this dealer supplied in Boston 80 per cent., in Cambridge 85 per cent., in Somerville 86 per cent. and in Everett 83 per

SCARLET FEVER EPIDEMIC 1907



cent. of the cases investigated, — an average of 84 per cent. in the four cities. The accompanying diagram shows graphically the course of the

epidemic and the interrelation between the cases and the milk supply. Recognizing, accordingly, the relationship between the epidemic and the milk furnished, investigation of the epidemic became an investigation of the business of the concern, which we will designate as "X."

In the first place, the milk business of "X" consists of a large wholesale trade and a retail trade. The cases of scarlet fever were traced back almost without exception to the retail, or bottled milk. Consequently, an investigation of this retail milk was undertaken. The retail milk, that is, the milk which is brought to Boston, bottled at one milk depot, and delivered, for the most part, by "X's" wagons through Somerville, Cambridge, Everett and Boston, comes to Charlestown in two separate cars. One of these cars, Car No. 5, is filled with cans that are gathered by various collectors and loaded upon the cars from six stations, Hollis, Pepperell, Groton, Willows, Graniteville and Westford. The other car, from which the retail milk is obtained, Car No. 9-2, gathers its load from New Braintree, Barre, Coldbrook, West Rutland, Rutland, Jefferson, Muschopauge, Quinapoxet, Oakdale, Berlin and Hudson.

Car No. 5 arrives in Charlestown at 10 o'clock, having put off half of its load at West Somerville. Upon arrival at the milk depot, a large metal vat is placed in the car as it stands on the siding, and this vat is connected by a metal tube with a pipe leading into the depot. The milk is first tasted can by can in the car and then emptied into the vat, whence it flows into a common reservoir in the depot. Then it is pumped over a large cooling apparatus into a strainer, from which it is bottled by machinery and corked. Next the bottles are crated and loaded on the wagons for distribution, or stored in a cold room for later demand, and at 10.15 the milk in Car No. 5 is thus emptied. Car No. 9-2 arrives at Charlestown at 10.20, and at 10.30 the milk is brought therefrom to Car No. 5 and mixed with the milk of the latter.

Wagons begin loading for routes in Malden, Somerville, Everett, Revere and Cambridge at 10.30 A.M. From midnight to 7 o'clock the next morning, wagons for routes in Boston and routes in parts of Cambridge and Watertown are loaded.

Infection of the milk is possible:—

First. — At the farms where the milk is produced.

Second. — By the taster of the milk before it is emptied into the vat when the cans are emptied at the milk depot.

Third. — By the milkmen at the depot handling the cans, bottles and apparatus concerned in the process of mixing, cooling, straining and bottling the milk.

Fourth. — By the drivers of the various routes in the process of delivering the milk.

I. INVESTIGATION OF THE MILK FARMS SUPPLYING "X."

Number of farmers supplying milk to cars Nos. 5 and 9-2,	222
Numbers of farmers interviewed (about),	100
Number of farms inspected,	27
Number of physicians in the district interviewed,	15
Number of cases of scarlet fever investigated:—	
In Pepperell,	12
In Barre,	4
	— 16

(1) The possibility of a direct infection of the milk from the 16 cases investigated was not proved.

(2) None of the 16 cases was directly connected with the farms supplying milk.

(3) One farm supplying milk was found to be in a filthy condition, and unqualified to supply clean milk, and not satisfying the conditions advertised by "X" as to the condition of the farms supplying "X" with milk.

(4) The milk cans returned by "X" for use by farmers are not properly cleaned.

(5) The milk cans used in bringing milk to Boston are being used by the farmers for other purposes.

(6) At South Merrimac a farm supplying milk to "X" was found upon which there had occurred three sudden deaths, one on December 31, one on January 1 and the third on January 7. The last case was reported by the attending physician as one of typhoid fever. Milk was shipped from this farm up to January 6, and again on January 16 and 17.

Investigation of these cases showed that they probably were due neither to scarlet fever nor to typhoid fever.

Conclusions.

(1) Milk was supplied to "X" by at least one farmer in violation of the advertised rule that "notice of infectious diseases among the persons concerned in the handling of milk shall be given to the contractors, and the shipment of milk stopped."

(2) A more careful supervision of the farms supplying milk is imperative.

II. INVESTIGATION OF THE MILK TASTER EMPLOYED AT THE MILK DEPOT OF "X."

On January 3 the taster regularly employed by "X" was replaced by a substitute. As this date corresponds closely with that upon which the milk was probably infected, this man and his family were carefully examined. The man showed a tongue with markedly prominent papillæ, back and chest covered with pimples, but no signs of desquamation, or other symptoms warranting a diagnosis of scarlet fever. Examination of his family showed that his thirteen-year-old daughter had much enlarged tonsils, a tongue with markedly enlarged papillæ, and signs of a fine scaly desquamation over the lower legs,—signs suggestive, but not diagnostic, of scarlet fever.

Inspection of the method of tasting the milk showed that the milk taster plunged a long spoon into the can to be tasted, lapped the spoon, shook it and plunged it into the next can. The spoon was produced from a dirty pocket, and was plunged into the milk without washing or without rinsing between the lapping of the spoon and immersion into the next can.

Other methods of tasting the milk, such as licking a finger dipped into the can, or licking the plug of the can, were reported, but not observed.

Conclusions.

(1) At a time when infection of the milk distributed by "X" might have caused the epidemic, there was employed at the milk depot of "X" a substitute milk taster whose condition suggested that he had had scarlet fever, and in whose family existed a person with signs strongly suggestive of this disease.

(2) The method of tasting milk, now in use, is exceedingly favorable to infection of the milk if the taster is suffering from contagious disease.

(3) Some cleaner method of testing milk should be utilized, such as the use of destructible throat sticks, in order to avoid infection of the milk by a dirty spoon.

III. INVESTIGATION OF WORKMEN EMPLOYED AT THE MILK DEPOT OF "X."

On January 14 a physician examined all of the men designated by "X" as engaged in handling the milk in any manner from its arrival on the cars to loading it on the delivery wagons. The throat and tongue, the skin of the chest and arms of each man were examined. Number of men examined, about fifty. Results of the examination: suspicious throats, six.

It appeared that cases of scarlet fever were present in the household of at least two of these employees.

Conclusions.

- (1) No cases of scarlet fever among the workmen employed at the depot were found.
- (2) Employees were found at work in whose families cases of scarlet fever existed.
- (3) A more careful medical inspection of men engaged in the handling of milk is necessary.

IV. INVESTIGATION OF THE DRIVERS ON THE SEVERAL MILK ROUTES OF "X."

A study of the distribution of the cases of scarlet fever over the various milk routes in Cambridge, Somerville and Everett showed:—

- (1) The cases were not limited to one or two routes, but in Everett and Somerville cases occurred on seven of the nine routes, and in Cambridge on seven of the eleven routes.
- (2) As nearly as can be ascertained by a rough estimate of the sequence in which the wagons are loaded at the depot, the infected milk left the depot not at any one period, but throughout the day, from 11 o'clock of the morning of the arrival of the milk until 7 o'clock of the next morning.
- (3) The routes in charge of the drivers who were either themselves infected, or in whose households cases of scarlet fever developed, showed no greater number of cases than other routes.
- (4) The milk routes supplying Cambridge, Somerville and Everett distribute milk on the day of its arrival, while the routes supplying Boston distribute milk early the next morning. In this connection it is to be noted that the epidemic reached its climax one day later in Boston than it did in Cambridge, Somerville and Everett.

Conclusions.

The infection of the milk probably occurred before the sealed jars were loaded upon the wagons for distribution along the various milk routes.

GENERAL CONCLUSIONS CONCERNING THE EPIDEMIC.

- (1) The sudden onset of this epidemic, together with its wide distribution, point to a common source of infection.
- (2) The simultaneous appearance of the explosion in Cambridge, Somerville, Everett, and, allowing for the fact that the milk distributed in Boston is delivered a day later than it is in the above-mentioned cities, in Boston, suggests that the period of infection was synchronous for these places.

(3) The explosive nature of the outbreak, shown by the fact that 67.66 per cent. of the cases occurred within six days, and the further fact that a large proportion of the stricken persons were taken sick on days during which the same installment of milk was distributed, indicate that the period during which the milk was infected was very brief, — probably one day only.

(4) The fact that in the cases investigated in Boston 80 per cent., in Cambridge 85 per cent., in Somerville 86 per cent. and in Everett 83 per cent. — an average of 84 per cent. — of the persons stricken obtained milk of the same dealer, and had nothing else discoverable in common as a means of infection, justifies the conclusion that the vehicle of contagion was the milk supplied by the dealer "X."

(5) The warm weather prevailing during the first part of January, when the outbreak occurred, was favorable for the multiplication of disease organisms introduced into the milk.

(6) Investigation of the farms supplying milk sold by "X" showed:—

(a) That at least one farm is unsanitary, and unfit to produce clean milk.

(b) That the milk cans used are not properly cleaned, and that cans are used for purposes other than the bringing of milk to the Boston market.

(c) That this dealer is not enforcing his rule, which requires the exclusion of milk from farms on which cases of infectious diseases are reported to exist.

(d) That a more careful supervision of the farms supplying milk for public sale is imperative.

(7) From investigation of the employees at the milk depot of "X" it appears:—

(a) That certain employees were at work, in whose families there existed cases of scarlet fever.

(b) That more careful medical supervision of the men engaged in handling the milk after its arrival should be required of the milk contractors.

(8) From investigation of the methods employed in testing milk at the milk depot it is evident that the least objectionable of those now in use is conducive to infection of the milk.

(9) From investigation of the drivers of the several milk routes it appears that the milk was probably infected before it was delivered to their hands in the sealed glass bottles in which it is distributed.

(10) A more careful supervision of the methods of milk contractors distributing milk in Boston and its vicinity is imperative; and this

supervision should include not only the methods of handling and delivering milk after its arrival in the city, but also the farms from which the milk is obtained.

NEW LEGISLATION.

The Legislature has passed the following acts:—

AN ACT TO AUTHORIZE THE TAKING FROM CONTAMINATED WATERS OF CLAMS AND QUAHAUGS FOR BAIT.

Be it enacted, etc., as follows:

SECTION 1. Whenever, upon the request of the state board of health under the provisions of section one hundred and thirteen of chapter ninety-one of the Revised Laws, the commissioners on fisheries and game have prohibited or may hereafter prohibit the taking from contaminated waters or flats in any city or town of any clams or quahaugs, the board of health of such city or town may grant permits in writing to any person to take from such waters clams or quahaugs to be used for bait only, and in such quantities and upon such conditions as they shall express in their permit.

SECTION 2. Any person holding a permit from the board of health of a city or town shall keep in his possession, and on his person, while acting thereunder, any permit obtained by him from said board of health, and shall at all times display the same upon the request of any person authorized to enforce the provisions of this act. Violation of this section shall be punished by a fine of not less than ten dollars nor more than fifty dollars, and in addition the permit shall be revoked and shall not thereafter be issued within twelve months.

SECTION 3. Any person who violates any of the provisions of such permit shall forfeit the permit and shall be punished by a fine not exceeding one hundred dollars, or by imprisonment for a term not exceeding three months, or by both such fine and imprisonment.

SECTION 4. Whoever sells, or exchanges, or exposes or offers for sale or exchange, or buys any clams or quahaugs, taken under the provisions of this act, shall be punished by a fine of not more than one hundred dollars, or by imprisonment for a term not exceeding three months, or by both such fine and imprisonment.

AN ACT RELATIVE TO THE LABELLING OF CERTAIN PATENT OR PROPRIETARY DRUGS AND FOODS.

Be it enacted, etc., as follows:

SECTION 1. Chapter three hundred and eighty-six of the acts of the year nineteen hundred and six is hereby amended by striking out section one and inserting in place thereof the following:—*Section 1.* Upon every package,

bottle or other receptacle holding any proprietary or patent medicine, or any proprietary or patent food preparation, which contains alcohol, morphine, codeine, opium, heroin, chloroform, cannabis indica, chloral hydrate, or acetanilid, or any derivative or preparation of any such substances, shall be marked or inscribed a statement on the label of the quantity or proportion of each of said substances contained therein. The size of type in which the names of the above substances shall be printed on the labels as above, shall not be smaller than eight point (brevier) caps: *provided*, that in case the size of the package will not permit the use of eight point cap type the size of the type may be reduced proportionately. The provisions of section nineteen of chapter seventy-five of the Revised Laws, so far as they are consistent herewith, shall apply to the manner and form in which such statements shall be marked or inscribed.

SECTION 2. No dealer shall be prosecuted under the provisions of this act when he can establish a guaranty signed by the wholesaler, jobber or manufacturer residing in this Commonwealth, from whom he purchases such articles, to the effect that the same is not misbranded within the meaning of this act, designating it. Such guaranty, to afford protection, shall contain the name and address of the party or parties making the sale of such articles to such dealer; and in such case said party or parties shall be amenable to the prosecutions, fines and other penalties which would attach, in due course, to the dealer under the provisions of this act.

SECTION 3. Section two of chapter three hundred and eighty-six of the acts of the year nineteen hundred and six is hereby repealed.

SECTION 4. This act shall take effect on the first day of March in the year nineteen hundred and eight.

MONTHLY BULLETIN



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OF
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STATE BOARD OF HEALTH.

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BOSTON:

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1907.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING APRIL 6, 1907.

CITIES AND TOWNS.	Population, ¹ Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —				
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Pthisis.	Diphtheria.	Typhoid Fever.
Boston,	609,761	248	55	42	35	24	1	—
Worcester,	132,240	49	9	12	6	7	2	1
Fall River,	106,123	52	18	8	15	5	2	—
Cambridge,	99,745	20	6	5	1	1	2	—
Lowell,	96,380	28	6	6	2	2	2	—
Lynn,	80,743	33	12	6	3	2	1	—
New Bedford,	79,744	39	14	7	5	1	1	—
Springfield,	78,707	18	4	4	3	3	—	—
Lawrence,	76,000	31	9	5	3	2	—	—
Somerville,	72,581	20	2	4	2	2	—	—
Holyoke,	51,730	10	8	5	2	2	1	—
Brockton,	51,289	13	3	5	1	1	—	—
Malden,	39,941	4	1	—	2	—	—	—
Chelsea,	38,659	10	3	—	—	—	—	—
Salem,	38,316	15	6	4	2	4	—	—
Newton,	38,209	8	2	1	2	1	—	—
Haverhill,	38,095	22	5	5	8	3	—	1
Fitchburg,	33,636	10	4	—	2	—	—	—
Everett,	31,274	12	4	3	—	1	1	—
Taunton,	30,967	—	—	—	—	—	—	—
Quincy,	29,944	6	1	1	—	1	—	—
Waltham,	27,493	8	4	3	—	2	2	—
Pittsfield,	26,425	10	2	—	2	—	—	—
Gloucester,	26,011	10	—	—	—	—	—	—
Brookline,	25,003	2	—	1	—	—	—	—
North Adams,	22,150	8	2	2	2	2	—	—
Chicopee,	20,615	7	2	2	—	—	—	—
Northampton,	20,508	9	3	—	—	—	—	—
Medford,	20,294	5	1	1	1	1	—	—
Beverly,	15,794	6	1	—	—	—	—	—
Leominster,	15,139	4	1	1	1	—	1	—
Hyde Park,	15,050	5	—	—	—	—	—	—
Melrose,	14,867	4	1	1	—	—	1	—
Newburyport,	14,755	—	—	—	—	—	—	—
Woburn,	14,462	6	—	2	3	1	—	—
Marlborough,	14,263	2	0	1	—	—	—	—
Westfield,	14,169	4	—	1	—	1	—	—
Peabody,	13,787	—	—	—	—	—	—	—
Revere,	13,697	3	—	—	—	—	—	—
Attleborough,	13,294	3	0	1	—	1	—	—
Clinton,	13,105	10	2	1	—	—	—	—
Adams,	13,072	3	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—
Watertown,	11,946	2	1	1	—	—	1	—
Plymouth,	11,796	—	—	—	—	—	—	—
Weymouth,	11,691	6	0	1	—	1	—	—
Framingham,	11,648	3	—	—	1	—	—	—
Southbridge,	11,416	4	2	1	—	—	1	—
Wakefield,	10,687	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,215,229	772	194	140	112	76	17	2	1
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING APRIL 13, 1907.

CITIES AND TOWNS.	Population estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				PrincipaL In- fectious Dis- eases,	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	203	48	41	32	22	4	-	-	-
Worcester,	132,240	69	16	10	11	7	1	-	-	-
Fall River,	106,123	32	13	5	8	2	1	1	-	-
Cambridge,	99,745	31	10	10	4	3	-	-	-	-
Lowell,	96,380	47	11	7	5	3	-	-	-	-
Lynn,	80,743	20	3	3	1	-	-	-	-	-
New Bedford,	79,744	29	6	2	3	2	-	-	1	1
Springfield,	78,707	34	5	7	1	4	-	-	1	1
Lawrence,	76,000	23	5	4	3	1	-	-	-	-
Somerville,	72,581	14	3	2	2	2	-	-	-	-
Holyoke,	51,730	20	9	4	3	1	2	-	-	-
Brockton,	51,289	15	2	1	3	1	-	-	-	-
Malden,	39,941	5	1	1	1	1	-	-	-	-
Chelsea,	38,659	9	2	4	1	3	-	-	-	-
Salem,	38,316	20	5	1	1	-	-	-	1	-
Newton,	38,209	12	2	1	1	-	-	-	-	-
Haverhill,	38,095	10	3	2	2	1	-	-	-	-
Fitchburg,	33,636	13	3	4	2	4	-	-	-	-
Everett,	31,274	6	2	-	-	-	-	-	-	-
Taunton,	30,967	19	2	3	6	1	-	-	-	-
Quincy,	29,944	4	2	-	-	-	-	-	-	-
Waltham,	27,493	12	1	2	2	2	-	-	-	-
Pittsfield,	26,425	9	2	-	-	-	-	-	-	-
Gloucester,	26,011	4	2	1	-	-	-	-	-	-
Brookline,	25,003	9	-	-	-	-	-	-	-	-
North Adams,	22,150	7	0	2	2	2	-	-	-	-
Chicopee,	20,615	8	3	1	4	1	-	-	-	-
Northampton,	20,508	8	0	1	1	1	-	-	-	-
Medford,	20,294	8	1	1	2	1	-	-	-	-
Beverly,	15,794	10	1	2	-	1	1	-	-	-
Leominster,	15,139	4	-	-	2	-	-	-	-	-
Hyde Park,	15,050	0	-	-	-	-	-	-	-	-
Melrose,	14,867	3	0	-	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-	-
Woburn,	14,462	4	1	-	-	-	-	-	-	-
Marlborough,	14,263	1	-	1	-	-	1	-	-	-
Westfield,	14,169	3	1	1	-	-	1	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-	-
Revere,	13,697	3	1	-	1	-	-	-	-	-
Attleborough,	13,294	3	1	-	1	-	-	-	-	-
Clinton,	13,105	5	1	1	-	-	1	-	-	-
Adams,	13,072	4	2	2	-	-	1	-	-	-
Gardner,	12,528	-	-	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-	-
Watertown,	11,946	3	2	1	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-	-
Weymouth,	11,691	3	1	-	1	-	-	-	-	-
Framingham,	11,648	-	-	-	-	-	-	-	-	-
Southbridge,	11,416	2	1	2	-	1	-	-	-	1
Wakefield,	10,687	-	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns,	2,234,548	748	174	129	107	76	9	3
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WEEK ENDING APRIL 20, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each Year.	Deaths under Five Years.	DEATHS FROM —						
				Principal Infectious Diseases.	Acute Lungs Diseases.	Pitfalls.	Diphtheria.	Typhoid Fever.	Malaria.	
Boston,	609,761	216	40	38	37	26	2	-	-	-
Worcester,	132,240	53	13	9	11	3	2	-	-	-
Fall River,	106,123	29	13	8	5	2	1	-	1	-
Cambridge,	99,745	33	5	6	3	3	-	-	-	-
Lowell,	96,380	28	9	10	6	7	-	-	-	-
Lynn,	80,743	25	4	4	-	4	-	-	-	-
New Bedford,	79,744	25	4	7	3	4	-	-	-	-
Springfield,	78,707	20	3	3	1	2	-	-	1	-
Lawrence,	76,000	22	4	6	2	6	-	-	-	-
Somerville,	72,581	15	1	1	2	1	-	-	-	-
Holyoke,	51,730	22	9	9	4	3	1	1	-	-
Brockton,	51,289	7	-	3	3	1	-	-	1	-
Malden,	39,941	17	5	1	3	1	-	-	-	-
Chelsea,	38,659	12	3	3	1	3	-	-	-	-
Salem,	38,316	14	5	1	-	1	-	-	-	-
Newton,	38,209	14	2	3	1	1	1	1	-	-
Haverhill,	38,095	13	3	2	5	-	1	-	-	-
Fitchburg,	33,626	8	4	-	-	-	-	-	-	-
Everett,	31,274	12	2	-	-	-	-	-	-	-
Taunton,	30,967	11	4	2	2	1	-	-	-	-
Quincy,	29,944	4	2	-	-	-	-	-	-	-
Waltham,	27,493	9	1	-	-	-	-	-	-	-
Pittsfield,	26,425	11	-	1	2	1	-	-	-	-
Gloucester,	26,011	6	2	1	-	1	-	-	-	-
Brookline,	25,003	4	-	1	1	1	-	-	-	-
North Adams,	22,150	9	2	1	1	1	-	-	-	-
Chicopee,	20,615	7	4	-	-	1	-	-	-	-
Northampton,	20,508	7	3	1	-	-	-	-	-	-
Medford,	20,294	6	-	1	-	1	-	-	-	1
Beverly,	15,794	3	-	1	1	1	-	1	-	-
Leominster,	15,139	1	-	1	-	1	-	-	-	-
Hyde Park,	15,050	8	3	3	2	2	2	1	-	-
Melrose,	14,867	5	2	1	1	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-	-
Woburn,	14,462	7	-	2	2	2	-	-	-	-
Marlborough,	14,263	3	2	-	-	-	-	-	-	-
Westfield,	14,169	3	-	-	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-	-
Revere,	13,697	5	1	-	2	-	-	-	-	-
Attleborough,	13,294	6	1	3	-	3	-	-	-	-
Clinton,	13,105	3	2	-	-	-	-	-	-	-
Adams,	13,072	3	2	2	-	1	-	-	-	-
Gardner,	12,528	-	-	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-	-
Watertown,	11,946	0	-	-	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-	-
Weymouth,	11,691	5	0	-	-	1	-	-	-	-
Framingham,	11,648	2	1	1	1	1	1	1	-	-
Southbridge,	11,416	4	1	2	1	1	1	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns,	2,246,196	717	162	138	108	88	11	3	2
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WEEK ENDING APRIL 27, 1907.

CITIES AND TOWNS.	Population-Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	257	63	44	43	27	9	1	—
Worcester,	132,240	65	17	10	9	2	4	1	—
Fall River,	106,123	57	21	19	5	5	1	1	—
Cambridge,	99,745	25	6	4	2	2	1	—	—
Lowell,	96,380	48	18	4	10	2	—	—	—
Lynn,	80,743	23	1	2	1	1	—	—	—
New Bedford,	79,744	28	7	6	4	4	—	—	—
Springfield,	78,707	29	7	1	6	—	—	—	1
Lawrence,	76,000	23	6	4	2	2	—	—	—
Somerville,	72,581	21	1	4	4	2	—	—	—
Holyoke,	51,730	24	7	5	5	5	—	—	—
Brockton,	51,289	18	4	5	2	3	—	—	—
Malden,	39,941	15	4	1	4	1	—	—	—
Chelsea,	38,659	10	4	1	1	1	—	—	—
Salem,	38,316	16	3	—	3	—	—	—	—
Newton,	38,209	3	1	—	—	—	—	—	—
Haverhill,	38,095	20	2	1	4	—	—	—	—
Fitchburg,	33,636	14	—	3	—	3	—	—	—
Everett,	31,274	3	1	—	—	—	—	—	—
Taunton,	30,967	14	7	—	5	—	—	—	—
Quincy,	29,944	3	—	2	—	1	—	—	—
Waltham,	27,493	7	—	—	—	1	—	—	—
Pittsfield,	26,425	9	3	1	2	—	1	—	—
Gloucester,	26,011	11	—	1	—	1	—	—	—
Brookline,	25,003	9	2	1	—	1	—	—	—
North Adams,	22,150	5	0	—	—	1	—	—	—
Chicopee,	20,615	5	1	—	3	—	—	—	—
Northampton,	20,508	9	1	1	—	—	1	—	—
Medford,	20,294	6	1	—	—	—	—	—	—
Beverly,	15,794	3	1	—	—	—	—	—	—
Leominster,	15,139	4	—	1	1	1	—	—	—
Hyde Park,	15,050	3	2	2	—	2	—	—	—
Melrose,	14,867	4	0	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	3	—	1	—	1	—	—	—
Marlborough,	14,263	4	0	1	—	1	—	—	—
Westfield,	14,169	7	—	1	—	1	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	4	2	—	2	—	—	—	—
Attleborough,	13,294	3	1	—	—	—	—	—	—
Clinton,	13,105	2	1	—	—	—	—	—	—
Adams,	13,072	3	1	1	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	7	3	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	4	2	—	1	—	—	—	—
Framingham,	11,648	4	—	—	1	—	—	—	—
Southbridge,	11,416	6	—	—	1	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,246,196	838	201	127	124	69	17	3	1
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WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS DISEASES.

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN ABOVE TABLES DURING THE WEEKS OF APRIL 6, 13, 20 AND 27, 1907.

DISEASE.	Place.	WEEK ENDING —			
		Apr. 6.	Apr. 13.	Apr. 20.	Apr. 27.
Cerebro-spinal meningitis, . . .	Boston, . . .	7	10	5	2
	Brockton, . . .	-	-	1	-
	Cambridge, . . .	-	1	1	-
	Clinton, . . .	1	-	-	-
	Everett, . . .	1	-	-	-
	Fall River, . . .	-	1	1	-
	Gloucester, . . .	-	1	-	-
	Haverhill, . . .	1	-	-	-
	Holyoke, . . .	-	-	2	-
	Lawrence, . . .	1	-	-	-
	Lowell, . . .	1	2	-	2
	Lynn, . . .	3	2	-	1
	Newton, . . .	-	-	1	-
	New Bedford, . . .	4	-	-	-
	Quincy, . . .	-	-	-	1
	Somerville, . . .	1	-	-	2
	Taunton, . . .	-	1	-	-
	Watertown, . . .	-	1	-	-
	Worcester, . . .	-	1	1	1
Erysipelas,	Boston, . . .	3	1	1	-
	Holyoke, . . .	-	-	1	-
	Lowell, . . .	-	1	1	-
	New Bedford, . . .	-	-	2	2
	North Adams, . . .	-	-	1	-
	Westfield, . . .	1	-	-	-
	Worcester, . . .	1	-	1	-
Scarlet fever,	Boston, . . .	1	2	1	-
	Haverhill, . . .	-	-	1	-
	Lynn, . . .	-	1	-	-
	Medford, . . .	1	-	-	-
	Newton, . . .	-	1	-	-
	Taunton, . . .	-	-	1	-
	Waltham, . . .	1	-	-	-
	Worcester, . . .	-	-	1	-
Whooping cough,	Cambridge, . . .	1	-	1	-
	Fall River, . . .	-	-	-	1
	Haverhill, . . .	-	1	-	1
	Lowell, . . .	1	1	-	-
	Melrose, . . .	-	-	1	-
	Worcester, . . .	2	1	-	-
Malaria,	Woburn, . . .	1	-	-	-

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF APRIL
6, 13, 20 AND 27, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	April 6.	April 13.	April 20.	April 27.
Diphtheria,	155	167	247	165
Measles,	204	185	175	208
Scarlet fever,	154	147	195	144
Typhoid fever,	24	21	20	25
Tuberculosis,	96	95	94	84
Cerebro-spinal meningitis,	27	22	20	17
Erysipelas,	2	2	2	3
Whooping cough,	3	7	22	5
Chicken pox,	1	—	—	—
Smallpox,	37	20	12	17

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of April, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Baking powder, .	1	-	1	Meat products— Con.			
Beer, . . .	2	-	2	Mince meat, .	1	-	1
Butter, . . .	12	-	12	Sausages, .	18	-	18
Canned soup, .	-	1	1	Tripe, . . .	1	-	1
Cider, . . .	2	2	4	Milk, . . .	214	29	243
Cocoa, . . .	2	-	2	Non-alcoholic drinks, . . .	8	-	8
Cream, . . .	1	-	1	Oysters, . . .	1	-	1
Cream of tartar, .	11	-	11	Pickles, . . .	4	2	6
Drugs, . . .	48	11	59	Salad dressing, .	5	-	5
Grape juice, .	-	1	1	Saleratus, . . .	1	-	1
Honey, . . .	3	-	3	Shrimps, . . .	-	1	1
Jams and jellies,	4	3	7	Spices, . . .	9	-	9
Lime juice, . .	-	1	1	Table sauce, . .	8	3	11
Maple sugar, . .	11	12	23	Vanilla extract, .	11	3	14
Maple syrup, . .	3	3	6				
Meat products:—							
Beef extract, .	1	-	1	Total, . . .	387	73	460
Hamburg steak,	2	1	3				
Head cheese, .	3	-	3				

The samples of drugs found to be adulterated were: spiritus camphoræ, tinctura iodi and several proprietary preparations.

The cities and towns in which samples were collected were: Attleborough, Boston, Braintree, Brockton, Brookline, Cambridge, Dedham, Fall River, Gloucester, Haverhill, Lowell, Lynn, Marlborough, Newburyport, Newton, New Bedford, Quincy, Salem, Somerville, South Framingham, Springfield, Taunton, Watertown and Waltham.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING
TO FOOD AND DRUGS.

Thirty-eight convictions were secured during the month of April, 1907, for selling adulterated food and drugs, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Harry Pezzole,	Mansfield, . . .	Butter (renovated).
2	Ora A. Atkins (Otis S. Neale Company), . . .	Boston, . . .	Champagne cider.
3	John J. Corbett, . . .	Boston, . . .	Champagne cider.
4	J. Herbert Park (Standard Bottling Extract Company), . . .	Boston, . . .	Champagne cider.
5	J Willard Huden (H. Siegel Company), . . .	Boston, . . .	Coca wine (Vin Mariani).
6	Patrick Canney, . . .	Boston, . . .	Corned beef.
7	Patrick Canney, . . .	Boston, . . .	Lunch tongue.
8	Lowell Packing and Provision Company, . . .	Lowell, . . .	Frankfurt sausages.
9	John A. Crowe, . . .	Lowell, . . .	Frankfurt sausages.
10	Edmund Fairburn, . . .	Lowell, . . .	Frankfurt sausages
11	William F. Gallagher, . . .	Lowell, . . .	Frankfurt sausages.
12	Daniel A. Sullivan, . . .	Lowell, . . .	Frankfurt sausages.
13	Alice Marsden, . . .	Fall River, . . .	Frankfurt sausages.
14	John Rasmussen, . . .	Fall River, . . .	Frankfurt sausages.
15	Frankie Ciacotta, . . .	Waltham, . . .	Maple sugar (85 per cent. cane sugar).
16	Goanno Salemme, . . .	Newton, . . .	Maple sugar (75 per cent. cane sugar).
17	Vizelo Gordona, . . .	Newton, . . .	Maple sugar (75 per cent. cane sugar).
18	John Merlino, . . .	Boston, . . .	Maple sugar.
19	Edward H. Brown, . . .	Springfield, . . .	Milk (watered).
20	William W. Calder, . . .	Fall River, . . .	Milk (total solids, 11.70).
21	Frank T. Donovan, . . .	Waltham, . . .	Milk (total solids, 11.80).
22	John Davis, . . .	Fall River, . . .	Milk (total solids, 11.64).
23	Cornelius J. Green, . . .	Fall River, . . .	Milk (total solids, 11.60).
24	George Gorman, . . .	Attleborough, . . .	Milk (total solids, 11.45).
25	Agastinho S. Furtado, . . .	Fall River, . . .	Milk (total solids, 11.62).
26	Gardner A. Teele, . . .	Waltham, . . .	Milk (total solids, 11.03).
27	Moses W. Thompson, . . .	Merrimac, . . .	Milk (total solids, 11.60).
28	Moses W. Thompson, . . .	Merrimac, . . .	Milk (total solids, 10.40, watered).
29	I. F. Silva, . . .	Fall River, . . .	Milk (total solids, 9.75).
30	Andrew B. Ryder, . . .	New Bedford, . . .	Milk (total solids, 11.45).
31	Edward S. Wright, . . .	Fall River, . . .	Milk (total solids, 8.44).
32	Edward S. Wright, . . .	Fall River, . . .	Milk (colored with annatto).
33	John E. Witherspoon, . . .	Boston, . . .	Mince meat.
34	John J. Cahill (H. Siegel Company), . . .	Boston, . . .	Salad dressing.
35	Rufus L. Clark, . . .	Boston, . . .	Salad dressing.
36	Frank W. Eaton, . . .	Brockton, . . .	Shrimps.
37	Freeman C. Spindell, . . .	Lynn, . . .	Shrimps.
38	Edward L. Moriarty, . . .	New Bedford, . . .	Tincture of iodine.

Fines imposed, \$764.66.

LIST OF ADULTERATED OR IMPROPERLY LABELED FOODS, ETC., FOR APRIL, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
5324	"Van Camp's Concentrated" tomato soup.	Van Camp Packing Company, Indianapolis, Ind., . . .	Preserved with benzoic acid.
4884	"Montego" lime juice,	F. P. Adams & Co., Boston, . . .	30 per cent. lime juice, 70 per cent. water; incorrectly labelled.
5060	Maple syrup, . . .	Eastern Preserving Company, Providence, R. I., . . .	6 per cent. maple syrup, 94 per cent. refined cane sugar syrup; incorrectly labelled.
5162	"The Escoffier Sauce Robert,"	Escoffier, Ltd., Ridgemount Street, Tottenham Court Road.	Preserved with benzoic acid.
5385	Libby's tomato chutney,	Libby, McNeil & Libby, Chicago, . . .	Preserved with benzoic acid.
5384	Libby's chili sauce, ¹	Libby, McNeil & Libby, Chicago, . . .	Preserved with benzoic acid.
5353	Russet apple cider,	Steohr Brothers, Boston, . . .	Preserved with benzoic acid.
5282	Concentrated unfermented grape juice. ²	Philip J. Ritter Conserve Company, Philadelphia, Pa., . . .	Preserved with benzoic acid.
5354	Strawberry preserves, ¹	Lutz & Schramm Company, Allegheny, Pa., . . .	Preserved with benzoic acid.
3784 M	Milk, . . .	E. J. Barrett, Lowell, . . .	Total solids, 9.22 per cent.; contained added water.
3862 M	Milk, . . .	Geo. H. Paynter, Essex, . . .	Total solids, 10.23 per cent.; contained added water, colored with annatto.
3866 M	Milk, . . .	Geo. H. Paynter, Essex, . . .	Total solids, 10.43 per cent.; contained added water, colored with annatto.

¹ "Guaranteed under the food and drugs act, June 30, 1906."

² "Guaranteed absolutely pure."

INSPECTION OF DAIRIES.

During the month of April, 1907, 217 dairies, 102 of which are in New Hampshire, and furnish milk for sale in Massachusetts, were examined. The Massachusetts dairies examined are situated in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Dedham,	42	21	50.00	21	50.00
Foxborough,	25	12	48.00	13	52.00
Hyde Park,	5	—	—	5	100.00
Norfolk,	6	4	66.67	2	33.33
Walpole,	7	4	57.14	3	42.86
Westwood,	26	15	57.69	11	42.31
Wrentham,	4	1	25.00	3	75.00

The detailed results of the examination of the New Hampshire dairies will be presented in the May "Bulletin," together with those of further work in other towns of the same State.

Total number of dairies examined,	217
Number found to be free from objectionable conditions,	85
Number to which letters were sent,	132
Total number of conditions to which attention was called,	588
Percentage of dairies which passed inspection,	39.17

The names of the owners of the dairies in Massachusetts found to be worthy of commendation follow:—

Dedham.

Bagley, William	Carney, Mark	Murphy, John S.
Brown, George	Edwards, W. P.	O'Connell, James
Burgess, J. K.	Endicott, H. R.	Prince, Francis
Burke, James	Fahy, John	Rodman, Alfred
Bussey, H. G.	King, Robert	Tarkins, Hiram
Butler, Waldo L.	Krug, John	Tepus, Michael
Capen, Calvin	McManus, Edward	Volk, George G.

Foxborough.

Ballantine, Mrs. E. I.	Comey, Herman	Hodges, Mrs. H. O.
Bardwell, Mrs. C.	Daniels, A. J.	Morse, E. A.
Benson, Henry E.	Hill, Miss S. T.	Peitman, E. W.
Buck, Abram	Hinman, Herbert	Perry, Henry A.

Norfolk.

Cook, Walter
Evans, J. H.

Giles, W. S.
Love, J. P.

Walpole.

Bock Bros.
Fraser, Emil

George, W. P.
Shepard, Edward L.

Westwood.

Crane, Charles S.
Crane, Joshua, Jr.
Eddy, Jerome P.
Flagg, Elmer S.
Forbes, W. Cameron

French, G. M.
Lyons, T. J.
Macleod, William A.
McLauren, A.
Rice, A. W.

Smith, Abram
Sullivan, John E.
Tilton, Jules H.
Watkins, Henry F.
Wright, James S.

Wrentham.

Smith, William D.

MEDICAL INSPECTION IN THE SCHOOLS OF MASSACHUSETTS.¹

BY GEORGE H. MARTIN, *Secretary of the Board of Education.*

Medical inspection of school children in Massachusetts began in Boston in November, 1894. Dr. Samuel H. Durgin, chairman of the board of health, had been for several years urging upon the city government the importance of school inspection as a preventive measure in the interest of public health. His request for money was denied by successive mayors until an outbreak of diphtheria in the fall of 1894 came to his aid.

The disease spread rapidly after the schools opened in September, and reached its height in December.

During the vacation months of July and August the number of cases varied from 25 to 40, and the deaths from 5 to 14.

In September the number of cases reported weekly reached 100, and the deaths 30.

In October the maximum report was 115, and the deaths 30.

In November the number of cases reached 152, with 35 deaths, and in December the cases were 125, and the deaths 41.

During that year (1894) there were 3,019 cases and 817 deaths.

¹ Read at the first annual meeting, in Washington, D. C., of the American School Hygiene Association.

The urgency of the situation forced the city government to accede to Dr. Durgin's request, and he was able to appoint fifty physicians, to make daily visits to the schools.

The efficiency of this work attracted attention outside of Boston, and similar work was undertaken in one suburban city and town after another, until in 1904 school physicians were regularly at work in some fifteen places.

The movement spread through the efficient work of enlightened school superintendents, aided by various social organizations, especially women's clubs and civic leagues. The effectiveness of the propaganda was increased by the widespread movement for the prevention of tuberculosis with the travelling exhibits. By means of these the public thought was drawn towards the subject of health and disease, and all measures of a sanitary nature acquired new interest. The unceasing activity of the State Board of Health, too, aided greatly in enlightening public opinion and in developing public sentiment.

Up to this time there had been no recognition of this work in the public statutes. Boards of health had carried on the work as a part of their function of caring for the public health, or school boards had included it in their several administrative plans.

During 1905, at the instance of Mr. Joseph Lee of Boston, a man whose life is devoted to the public welfare, especially to the welfare of children, numerous conferences were held, attended by physicians and school officials, for the purpose of formulating some general scheme for medical inspection. The work already done was explained and compared, its deficiencies exposed and plans submitted and discussed. The outcome of these meetings was the preparation of a bill which was presented to the Legislature of 1906, making medical inspection compulsory throughout the State.

Another bill had been presented by a member of the Legislature, copied from the Vermont law, requiring an annual test of the vision and hearing of all school children. This bill would have gone through easily, but the more comprehensive one required a good deal of effort at committee hearings and in private conferences with members. A paragraph in the Governor's message favoring it helped to give it standing, and it was finally passed and approved, and became known as chapter 502 of the Acts of 1906.

The law requires the appointment of school physicians in every town and city in the State, so that we have now in Massachusetts four classes of school officials of equal legal standing, school committees, superintendents, physicians and teachers, having mutually co-operative functions centering in the welfare of the children.

The purpose of the school inspection as presented by the law is two-fold. It includes those precautionary measures which would naturally be taken in the interest of public health,—the examination and exclusion for contagious diseases. But it goes far beyond this in section 5, which reads as follows:—

SECTION 5. The school committee of every city and town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. The tests of sight and hearing shall be made by teachers. The committee shall cause notice of any defect or disability requiring treatment to be sent to the parent or guardian of the child, and shall require a physical record of each child to be kept in such form as the state board of education shall prescribe.

I suspect that this will prove to be one of the most far-reaching measures in the interests of public education which has ever been enacted by a legislative body.

The law as finally enacted contains two weak points. Under the terms of the first section, in cities the school physicians must be appointed by school boards, except when boards of health are already carrying on such work, or may hereafter do so. This invites controversy between the two boards, and already in several cities friction at this point has delayed the work. The bill as originally drawn placed the whole matter in the hands of school boards, but the opposition was so strong from several cities where boards of health were doing satisfactory work that a compromise seemed necessary, with the usual result of compromises.

The other weakness is in the last section, which was added by one of the committees during the progress of the bill. This limits the expenditure for the services of school physicians to the amount specifically appropriated for the purpose either by a town or by a city council. If an appropriation is refused, nothing can be done; or, if the appropriation is inadequate, the work can be only partial and ineffective.

This is not wholly a misfortune, because it throws upon the friends of the movement the responsibility for continued effort to enlighten and convince the people.

By the advice of leading oculists, the law provides that the annual tests of vision and hearing shall be made by the teachers, and the expense of this is borne by the State. The limitation contained in section 7 of the law does not, therefore, affect this part of the work.

In accordance with the law, the State Board of Health prepared directions for these tests, and the necessary material was furnished to all the schools by the Board of Education. These tests have now been completed, including more than 400,000 children, and the statistics of the results are being gathered.¹

Vision tests have been made widely during recent years, and there is no reason to think the results in Massachusetts will vary from those already recorded elsewhere. The same differences which mark the work of teachers in other lines are apparent in these tests. Doubtless some reports exaggerate the number of defectives and others make the number too small, but the average will probably be nearly correct.

Some surprise has been expressed that the law should direct that teachers should make these tests. But all the oculists consulted agreed that this preliminary investigation was well within the grasp of the ordinary teacher, and that her familiarity with the children would tend to relieve the examination from the nervous excitement likely to attend examination by a stranger.

So far as statistics of examinations have been published, there has been no evidence that the work of teachers as a class is less reliable than that of specialists.

It will probably be found that the effect of this work upon the teachers themselves is not less important than the direct benefit to the children. Defective vision is not a misfortune confined to school children. Teachers are discovering that their own eyes have been singularly blind to the condition of their pupils. "I am astonished," "It is a revelation to me," "I am ashamed not to have known my own school better," "How stupid I have been," are expressions heard from teachers whose own eyes have been opened.

It is too early to reach final conclusions regarding this part of the work, but certain facts seem to be indicated: —

1. That for defects found by the use of the Snellen cards parents should not be notified if the vision is better than 2½0.
2. That there is danger that too many children will be made to wear glasses.
3. That there is danger from poor glasses sold by so-called opticians.
4. That some means will need to be provided for supplying glasses to poor children.
5. That the children will suffer from the ignorance or wilfulness of parents. Several illustrations of this have come to my knowledge.

¹ Reports have been received from 253 towns and cities, in which 224,632 children have been examined. Of these, 44,123, or about 20 per cent., are reported as having defective vision, and 13,145, or about 6 per cent., as having defective hearing.

A child has been supplied with glasses left by a recently deceased grandmother.

A father held an apple and an orange in his hands, and, finding his child could distinguish them across the room, declared that nothing was the matter.

Another father tried his own glasses on his child, and because the child could see nothing refused to buy others.

How many of the 354 towns and cities have made appropriations and appointed school physicians is not yet known, but probably nine-tenths. The failure to do so in many towns is due to indifference rather than active opposition. No one cared enough about the matter to bring it up at the town meeting, and it went by default. There is a good deal of skepticism among the people as to the need of inspection, especially in the country towns. They think of it as another school fad.

I have heard of several towns which have shown their regard for law and their contempt for inspection by appropriating five or ten or fifteen dollars for the purpose.

The campaign of education will need to be continued for another year at least.

There is as yet no satisfactory basis for estimating the proper cost of this inspection.

In a circular issued by the Massachusetts Civic League, it is suggested that \$11 for each 1,000 inhabitants might be the appropriate cost in small towns. This is based on the expenditures of several towns and cities in previous years.

Few reports have yet been received as to the scope or results of the work throughout the State; but enough has been done to show that the most serious defects and disabilities exist in the towns and smaller cities, as well as in the more congested centers. Epidemics of contagious diseases appear in all parts of the State.

During the school year of 1905-1906, 316 rooms were closed for a period varying from one or two days to four weeks, on account of diphtheria, scarlet fever and measles. These rooms were in 69 towns, and they contained 12,078 children.

Filth and vermin seem to be almost universal. The following cry from a mother in a rural community would probably have an echo in many others:—

Is there nothing that can be done to protect us mothers from the vermin acquired at school? Some of the children come with "stock" enough to infect the bodies and clothing of a whole school.

The lot of farmers' wives in these hill towns who have Rooseveltian families

but not Rooseveltian means to care for them is not an easy one at best, but when it comes to spending two or three hours a day in cleansing our children from vermin "got at school," to say nothing of spending no inconsiderable amount of money on vermicides and fine-toothed combs, the burden is really a serious one.

Some interesting study has been made in Brookline of the relation of the physical condition to the class standing of pupils.

Of 420 children examined, 40 per cent. had perfect vision, 30 per cent. had mild defects, and 23 per cent. had serious defects.

Of scholars ranked as "excellent," 50 per cent. had normal eyes, and 14 per cent. had serious defects.

Of scholars ranked as "unsatisfactory," 40 per cent. had serious eye defects.

Of the "excellent" scholars, 17 per cent. had diminished hearing.

Of the "good" scholars, 20 per cent. had diminished hearing.

Of the "unsatisfactory" scholars, 52 per cent. had diminished hearing.

Of the "poor" scholars, 42 per cent. had diminished hearing.

Certain facts concerning some of the so-called ungraded classes in Boston are significant. These classes are composed of children who have failed to keep up with the work in the lower grades. They are grouped in small classes, and given chiefly individual work.

Of 43 girls of this class in one school but 2 were found normal in vision and hearing.

Of 66 boys in another school, 64 per cent. were found defective in vision, while of the rest of the school, 473 boys, 36 per cent. were defective.

In another school, boys and girls, of 40 children in ungraded classes, 65 per cent. were found defective in vision or hearing, or both. While of the remaining 707 children, 36 per cent. were defective.

In order to make the inspection called for by the law of 1906 more uniform and effective throughout the State, His Excellency Governor Guild called into conference the State Board of Education and a number of physicians of Boston and vicinity.

The result of this conference was the appointment of a committee of three, consisting of Dr. Robert W. Lovett, Dr. Charles Harrington, secretary of the State Board of Health, and the secretary of the Board of Education, to prepare a manual of suggestions for the guidance of school physicians.

Conferences were held with the heads of departments in the medical schools and in the hospitals, all well-known specialists, to obtain from them suggestions as to the defects and disabilities likely to be found in

school children, and the means of discovering them. It early appeared that the primary observations must be made by the teachers, and, consequently, that the manual must be simple in its description and free from technicalities. The men gave freely of their time and thought, and furnished to the committee material of great value for the purpose intended. It has been arranged and printed and published by the Board of Education in numbers sufficient to furnish a copy to every school teacher and school physician in the State, and have some left for missionary work among other classes. One city board of health has asked for 500 copies. As a tract for the promulgation of the new gospel of health, it seems likely to prove of considerable value.

This is a plain story of a beginning. It is in the nature of a report of progress. The outlook is encouraging, and in another year we hope to have sufficient data to make our work useful as a precedent.

MONTHLY BULLETIN



OF THE

STATE BOARD OF HEALTH

OF

MASSACHUSETTS.

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MAY, 1907.

Vol. 2. No. 5.

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STATE BOARD OF HEALTH.

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BOSTON :

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1907.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING MAY 4, 1907.

CITIES AND TOWNS.	Population, ¹ estimated for 1905.	Reported Deaths in each.	Deaths under Five Years.	DEATHS FROM —							
				Principal In- fectious Dis- eases	Acute Lung Diseases	Influenza	Inflammation of the Throat	Tuberculosis	Other Diseases	Malaria	
Boston,	609,761	221	44	42	27	27	2	—	—	—	—
Worcester,	132,240	38	9	3	11	7	1	—	—	—	—
Fall River,	106,123	41	15	14	7	—	—	—	—	—	—
Cambridge,	99,745	25	8	3	6	3	—	—	—	—	—
Lowell,	95,380	32	6	7	4	3	—	—	12	—	—
Lynn,	80,743	19	4	2	—	—	—	—	—	—	1
New Bedford,	79,744	34	18	3	3	3	—	—	—	—	—
Springfield,	78,707	23	5	5	3	3	3	—	—	—	—
Lawrence,	76,000	25	9	5	—	—	—	—	—	—	—
Somerville,	72,581	17	1	3	3	3	2	—	—	—	—
Holyoke,	51,730	30	10	3	6	12	12	—	—	1	—
Brockton,	51,289	12	2	—	—	—	—	—	—	—	—
Malden,	39,941	11	3	—	—	—	—	—	—	—	—
Chelsea,	38,659	8	2	—	—	—	—	—	—	1	—
Salem,	38,316	13	4	—	—	—	—	—	1	—	—
Newton,	38,209	8	2	—	—	—	—	—	—	—	—
Haverhill,	38,095	13	1	1	—	—	—	—	1	—	—
Fitchburg,	33,636	7	3	—	2	—	—	—	—	—	—
Everett,	31,274	9	2	—	—	—	—	—	—	—	—
Taunton,	30,967	17	1	2	4	1	—	—	—	—	—
Quincy,	29,944	1	—	1	—	—	—	—	—	—	—
Waltham,	27,493	1	—	—	—	—	—	—	—	—	—
Pittsfield,	26,425	—	—	—	—	—	—	—	—	—	—
Gloucester,	26,011	5	2	—	—	—	—	—	—	—	—
Brookline,	25,003	4	1	—	—	—	—	—	—	—	—
North Adams,	22,150	6	1	2	—	—	—	—	1	—	—
Chicopee,	20,615	8	5	1	4	1	—	—	—	—	—
Northampton,	20,508	4	1	1	—	—	—	—	—	—	—
Medford,	20,294	5	—	—	—	—	—	—	—	—	—
Beverly,	15,794	1	—	1	—	—	—	—	1	—	—
Leominster,	15,139	4	1	—	—	2	—	—	—	—	—
Hyde Park,	15,050	5	1	—	—	—	—	—	—	—	—
Melrose,	14,867	3	0	—	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—	—
Woburn,	14,462	8	1	3	—	—	2	—	—	—	—
Marlborough,	14,263	5	0	—	1	—	—	—	—	—	—
Westfield,	14,169	2	1	—	1	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—	—
Revere,	13,697	1	1	—	—	—	—	—	—	—	—
Attleborough,	13,294	5	0	—	—	—	—	—	—	—	—
Clinton,	13,105	4	1	1	—	—	2	—	—	1	—
Adams,	13,072	3	—	—	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—	—	—
Watertown,	11,946	4	1	—	—	1	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	3	1	1	—	—	1	—	—	—	—
Framingham,	11,648	1	—	—	—	—	—	—	—	—	—
Southbridge,	11,416	2	2	—	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,219,771	688	169	109	93	67	7	4	—
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Tewksbury, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence at the census of 1905 was 70,600, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING MAY 25, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Malaria.	
Boston,	609,761	208	63	43	25	19	5	1	—	2
Worcester,	132,240	41	7	8	7	2	4	—	—	—
Fall River,	106,123	35	12	6	10	3	1	—	—	—
Cambridge,	99,745	17	1	1	2	4	2	—	—	—
Lowell,	96,380	34	13	7	4	4	—	—	—	—
Lynn,	80,743	13	1	6	—	5	—	—	—	—
New Bedford,	79,744	23	6	3	1	2	—	—	—	—
Springfield,	78,707	17	7	3	3	1	—	—	—	2
Lawrence,	76,000	22	3	2	2	1	—	1	—	—
Somerville,	72,581	19	3	3	3	—	—	—	—	—
Holyoke,	51,730	22	13	7	2	1	1	—	—	—
Brockton,	51,289	16	9	3	5	2	1	—	—	—
Malden,	39,941	10	1	2	2	2	—	—	—	—
Chelsea,	38,659	16	4	3	3	3	—	—	—	—
Salem,	38,316	8	2	1	1	1	1	—	—	—
Newton,	38,209	11	2	1	—	1	—	—	—	—
Haverhill,	38,095	10	4	2	4	1	—	—	—	—
Fitchburg,	33,636	6	2	1	—	1	—	—	—	—
Everett,	31,274	5	—	—	—	—	—	—	—	—
Taunton,	30,967	10	3	3	—	2	—	—	—	—
Quincy,	29,944	9	2	3	—	1	—	—	—	—
Waltham,	27,493	5	—	1	—	—	1	—	—	—
Pittsfield,	26,425	6	0	—	—	—	—	—	—	—
Gloucester,	26,011	5	1	1	—	—	—	—	—	—
Brookline,	25,003	5	0	3	—	3	—	—	—	—
North Adams,	22,150	5	2	2	1	1	1	—	—	—
Chicopee,	20,615	10	4	2	2	2	2	—	—	—
Northampton,	20,508	5	0	1	1	1	—	—	—	1
Medford,	20,294	5	—	—	1	—	—	—	—	—
Beverly,	15,794	5	—	—	1	—	—	—	—	—
Leominster,	15,139	2	—	—	—	—	—	—	—	—
Hyde Park,	15,050	4	1	—	—	—	—	—	—	—
Melrose,	14,867	4	—	1	—	1	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	3	—	1	—	1	—	—	—	—
Marlborough,	14,263	4	1	1	—	1	—	—	—	—
Westfield,	14,169	3	—	—	1	—	1	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	3	1	2	—	1	—	—	—	—
Attleborough,	13,294	4	0	—	—	—	—	—	—	—
Clinton,	13,105	3	0	—	—	—	—	—	—	—
Adams,	13,072	—	—	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—	—
Watertown,	11,946	2	1	—	—	1	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	4	0	1	—	1	—	—	—	—
Framingham,	11,648	5	1	—	—	—	—	—	—	—
Southbridge,	11,416	4	1	—	1	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,233,124	648	171	117	90	66	13	3	4
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF MAY 4, 11, 18 AND 25, 1907.

DISEASE.	Place.	WEEK ENDING -			
		May 4.	May 11.	May 18.	May 25.
Cerebro-spinal meningitis,	Boston, . . .	4	10	6	13
	Brookline, . . .	-	1	-	-
	Brockton, . . .	-	-	3	1
	Cambridge, . . .	-	1	1	-
	Fall River, . . .	-	-	1	-
	Gloucester, . . .	-	-	-	1
	Lowell, . . .	1	1	-	-
	Lynn, . . .	-	-	1	1
	New Bedford, . . .	-	-	2	1
	No. Adams, . . .	1	-	-	-
	Revere, . . .	-	1	-	-
	Salem, . . .	1	-	-	-
	Woburn, . . .	1	-	1	-
	Worcester, . . .	-	1	2	-
Erysipelas,	Boston, . . .	1	1	2	-
	Leominster, . . .	-	-	1	-
	Lynn, . . .	2	-	-	-
	Springfield, . . .	1	-	-	-
	Taunton, . . .	-	-	-	1
Scarlet fever,	Boston, . . .	-	1	-	-
	Chelsea, . . .	-	1	-	-
	Haverhill, . . .	-	-	1	1
	Lawrence, . . .	1	-	-	-
	Lowell, . . .	-	-	-	1
	Lynn, . . .	-	1	-	-
	Somerville, . . .	1	-	-	-
	Worcester, . . .	-	-	2	-
Whooping cough,	Boston, . . .	1	1	1	2
	No. Adams, . . .	-	-	-	1
	Revere, . . .	-	-	-	1
	Worcester, . . .	-	-	-	1

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF MAY
4, 11, 18 AND 25, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	May 4.	May 11.	May 18.	May 25.
Diphtheria,	161	152	180	153
Measles,	186	190	195	207
Scarlet fever,	147	123	106	98
Typhoid fever,	19	16	11	19
Tuberculosis,	87	83	78	81
Cerebro-spinal meningitis,	16	22	10	18
Smallpox,	8	8	1	2
Chicken pox,	2	—	1	4
Whooping cough,	4	4	—	3
Malaria,	1	—	—	—

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of May, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Baking powder, . . .	3	—	3	Meat (turkey), .	.2	—	2
Beer,	2	—	2	Meat products:—			
Butter,	11	—	11	Canned meats,	2	—	2
Canned soup, . . .	3	—	3	Hamburg steak,	2	4	6
Canned peas, . . .	2	—	2	Head cheese,	1	—	1
Cocoa,	4	—	4	Jellied pigs' feet,	1	—	1
Coffee,	2	—	2	Jellied tongue,	1	—	1
Cream,	3	—	3	Pickled tongue,	1	—	1
Cream of tartar, . .	7	—	7	Sausages, . . .	9	1	10
Drugs,	88	26	114	Tripe,	3	—	3
Flavoring extracts:—				Milk,	268	26	294
Lemon,	2	—	2	Pickles,	15	14	29
Vanilla,	3	1	4	Salad dressing, . .	1	1	2
Grape juice,	3	—	3	Spices,	14	—	14
Gluten flour,	1	—	1	Table sauce, . . .	2	—	2
Honey,	2	—	2	Vinegar,	3	—	3
Horse radish,	1	—	1	Wine,	—	1	1
Jams and jellies, . .	2	1	3	Total,	483	84	567
Maple sugar,	18	9	27				
Maple syrup,	1	—	1				

The samples of drugs found to be adulterated were: fluidextractum zingiberis, glycerinum, spiritus camphoræ, tinctura iodi and several proprietary preparations.

The cities and towns in which samples were collected were: Beverly, Boston, Braintree, Brockton, Cambridge, Canton, Chelsea, Chicopee, Dalton, Dedham, Fall River, Gloucester, Greenfield, Hyde Park, Lowell, Lynn, Mansfield, Marlborough, Natick, Newton, Peabody, Pittsfield, Revere, Salem, Springfield, Taunton, Waltham, Wayland, Webster and Worcester.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Twenty-five convictions were secured during the month of May, 1907, for selling adulterated food and drugs, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Rufus L. Clark, .	Boston, .	Chili sauce.
2	Chas. E. Munroe, .	Boston, .	Cider.
3	Joseph T. Stoehr, .	Boston, .	Cider.
4	Leslie F. Amero, .	Gloucester, .	Milk (total solids, 11.38).
5	M. B. Boudreau, .	Waltham, .	Milk (total solids, 11.50).
6	John Crawford, .	Fall River, .	Milk (total solids, 11.09).
7	William Crossley, .	Fall River, .	Milk (total solids, 11.24).
8	Joshua T. Durfee, .	Fall River, .	Milk (total solids, 10.89).
9	Thorndike P. Earle, .	Peabody, .	Milk (total solids, 11.44).
10	Joseph A. Ferron, .	Lowell, .	Milk (total solids, 11.14).
11	Frank A. Ford, .	Fall River, .	Milk (total solids, 11.68).
12	Robert Foss, .	Topsfield, .	Milk (total solids, 11.16).
13	Philip Jasmin, .	Chicopee, .	Milk (total solids, 11.25).
14	Antonio C. Laura, .	Raynham, .	Milk (total solids, 11.49).
15	Authee Lavoie, .	Lowell, .	Milk (total solids, 11.28).
16	James J. Lehan, .	Waltham, .	Milk (total solids, 11.48).
17	William A. Morris, .	Springfield, .	Milk (total solids, 10.34).
18	J. F. Marshall, .	Beverly, .	Milk (total solids, 11.49).
19	William F. Marshall, .	Gloucester, .	Milk (total solids, 11.89).
20	Thos. E. Spittle, .	Gloucester, .	Milk (total solids, 11.20).
21	Geo. O. Williams, .	Dighton, .	Milk (total solids, 11.02).
22	Henry F. Woodbury, .	Beverly, .	Milk (total solids, 11.16).
23	Joseph W. Trask, .	Beverly, .	Milk (total solids, 11.71).
24	Jeffrey J. Walsh, .	Fall River, .	Spirits camphor.
25	Francis P. Adams, .	Boston, .	Strawberry preserves.

Fines imposed, \$433.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR MAY, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
5623	"Old Virginia" chutney relish.	McMcchen Preserving Company, Wheeling, W. Va.,	Preserved with benzoic acid.
8717 N	Sweet gherkins, ¹	Lantz & Schramm Company, Allegheny, Pa.,	Preserved with benzoic acid.
5345	Sweet mixed pickles,	{	
5646	Diamond relish,	Cruikshank Brothers, Allegheny, Pa.,	Preserved with benzoic acid.
8621 N	Cruikshank's sweet pickles.	{	
8437 N	"My Wife's" salad dressing.	My Wife's Salad Dressing Company, New York and Chicago.	Contained a boron preservative.
8413 N	Maple sugar, ".	F. Stagnaro, Springfield, Mass.,	70 per cent. refined cane sugar.
4138 M	Blended sugar, maple flavor.	G. M. Tice & Co., Boston, Mass.,	75 per cent. refined cane sugar; formula incorrect.
5528	"Ideal Strawberry and Apple,"	Logan, Johnson Company, Boston, Mass.,	Preserved with benzoic acid.
869 N	Milk,	A. M. Benedict, Pittsfield, Mass.,	
8467 N	Milk,	George Arthur, Canton, Mass.,	11.25 per cent. total solids; contained added water.
3964 M	Spirit of camphor,	Highland Pharmacy, Boston, Mass.,	8.54 per cent. total solids; contained added water.
8363 N	Spirit of camphor,	W. H. Davis, Fall River,	67 per cent. of required strength.
8741 N	Tincture of iodine,	Irving R. Barker, Springfield, Mass.,	43 per cent. of required strength.
8779 N	Tincture of iodine,	Hornbott L. White, Greenfield, Mass.,	61 per cent. of required strength.
			71 per cent. of required strength.

¹ Guaranteed under the food and drugs act.

INSPECTION OF DAIRIES.

During the month of May, 1907, 253 dairies, 98 of which are in New Hampshire and furnish milk for sale in Massachusetts, were examined. The Massachusetts dairies examined are situated in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Berkley,	13	9	69.23	4	30.77
Beverly,	1	1	—	—	—
Dighton,	7	3	42.86	4	57.14
Milton,	29	9	31.03	20	68.97
Norton,	20	8	40.00	12	60.00
Raynham,	21	10	47.62	11	52.38
Taunton,	64	35	54.69	29	45.31

Total number of dairies examined (including those in New Hampshire), 253
 Number found to be free from objectionable conditions, 117
 Number to which letters were sent, 136
 Total number of conditions to which attention was called, 577
 Percentage of dairies which passed inspection, 46.25

The names of the owners of the dairies in Massachusetts found to be worthy of commendation follow:—

Berkley.

Allen, E. H.	Cummings, Albert.	Gracie, Joseph.
Briggs, C. S. C.	Dean, Edmund P.	McKay, J. H.
Coville, A. H.	Fletcher, F. W.	White, Antone.

Beverly.

Pickman, Dudley L.

Dighton.

Bartlett, Mrs. D. E.	Frances, George E.	Walker, N. Allen.
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Milton.

Brown & Sylvada.	Farrington, J. Henry.	Marshall, A.
Dennis, W. S.	Fenno, J. P.	Murray, Michael W.
Ellis, George.	Hanniford, George H.	Russell, Mrs. H. S.

Norton.

Fagan, Maria.	Leonard, V. H.	Rounds, H. N.
Freeman, Henry	Norton Town Farm.	Sherwood, J. D.
Freeman, S.	Robinson, R.	

Raynham.

Goodwin, H. S.	Hall, N. E.	Reid, James.
Hall, C. T.	King, Jesse.	Scanlan, Patrick.
Hall, E. D.	Parker, John.	Vanderford, John.
Hall, Edgar E.		

Taunton.

Bailes, Mrs. N. E.	Jacento, Frank.	Reed, H. E.
Bailes, Walter.	Knapp, E. M.	Silvia, John T.
Cadosa, Joseph.	Leonard, estate of M.	Silvia, L.
Curtin, J. P.	Marie, Joseph.	Silvia, M. S.
Dexter, John.	Martin, J. F.	Soper, George O.
Dexter, Samuel.	Moore, Miss J. M.	Sweet, L. B.
Dupont, H. H.	Moxon, N. B.	Walker, George N.
Field, A. R.	Newman, J.	Williams, George F.
Folsom, S. F.	O'Neil, D. A.	Williams, R. L.
Goff, J. H.	Paine, F. F.	Williams, Roger.
Hallowell, B. F.	Parker, George W.	Willis, John.
Horton, J. O.	Reed, G. E.	

NEW HAMPSHIRE DAIRIES.

In the April bulletin it was stated that in the May bulletin would be presented the detailed results of the examination of the New Hampshire dairies, together with those of further work in other towns of the same State. They are as follows:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Antrim,	21	11	52.38	10	47.62
Bennington,	3	3	100.00	—	—
Chester,	1	—	—	1	—
Deering,	6	4	66.67	2	33.33
Derry,	14	4	28.57	10	71.43
Frauncestown,	4	—	—	4	100.00
Greenfield,	31	8	25.81	23	74.19
Hancock,	29	9	31.03	20	68.97
Hillsborough,	20	10	50.00	10	50.00
Hudson,	9	2	22.22	7	77.78
Jaffrey (East),	9	3	33.33	6	66.67
Londonderry,	21	5	23.81	16	76.19
Pelham,	1	—	—	1	—
Peterborough,	23	8	34.78	15	65.22
Sharon,	1	1	—	—	—
Windham,	7	2	28.57	5	71.43

Total number of New Hampshire dairies examined,	200
Number found to be free from objectionable conditions,	70
Number to which letters were sent,	130
Total number of conditions to which attention was called,	604
Percentage of dairies which passed inspection,	35

The milk produced on these farms is collected by three different contractors, who may be designated "A," "B" and "C." The sanitary condition of the barns in contractor "A's" territory was commonly found to be far from commendable; many of the cows were exceedingly filthy and not a few of them showed evidence of tubercular disease of the udder as well as of the lungs.

The farms which supplied contractor "B" were observed to be in a far more cleanly condition than those supplying "A," but some of them were found to be very dirty, unventilated and undrained. Some of them have proper milk houses or milk rooms, and most of them have "coolers" and use ice. Numbers of the cows were observed to have tuberculosis either of the lungs or of the udder, and many of them were very filthy.

The milk bought by contractor "C" was found to be collected every other day, and hence was in part, at least, forty-eight hours old before leaving the barns. It was said that the producers themselves would prefer to ship their milk daily, but that the contractor was unwilling to run the car any oftener. Inasmuch as the milk on arrival at its destination is not immediately sold, but commonly is held upwards of twenty-four hours, it is clear that this milk must be about three days old before delivery to the consumer.

The barns in contractor "C's" territory were very generally dirty, poorly ventilated and badly drained. Very few of them have milk rooms, and in most cases the milk is cooled and stored in troughs in the barn. Many of the cows show evidences of tuberculosis either of the lungs or of the udder, or both.

Inquiry among the farmers developed the fact that contractor "B" has made an earnest effort to enforce cleanliness and proper storage of milk; that contractor "A" appears to have been less urgent in this particular; and that contractor "C" does absolutely nothing to promote cleanliness at the place of production or to consider the interests of the producers.

AN OUTBREAK OF DIPHTHERIA IN DORCHESTER, MILTON, AND HYDE PARK, DUE TO INFECTED MILK.

On April 13, after a period of comparative freedom from diphtheria, there were reported to the board of health of the town of Milton 11 cases of that disease. This sudden explosion caused, very naturally, a feeling of grave apprehension on the part of the local health authorities, who made immediate application to the State Board of Health for as-

sistance in determining its origin. On the following day another case was reported. Investigation showed that all of the cases reported on April 13 and single cases reported on April 12 and 14 had this in common: that the families of the victims were supplied, without exception, by the same dealer in milk, whose route lies partly in Milton and partly in Dorchester. Inquiry at the office of the board of health of the city of Boston developed the fact that on April 12 there were reported from Dorchester 6 cases; on April 13, 19 cases, and on April 14, 11 cases of the disease, all in families supplied by this same dealer, whom we will designate as "A." Inquiry into the sources of his supply developed the fact that it was derived from six producers, as follows:—

J. H., Randolph.—Ten cans, some of which were bought of other producers; all delivered to "A." No diphtheria on the premises of J. H. or on those of the others who contributed to his supply.

R. B. N., Randolph.—Four cans, all sold to "A." No diphtheria.

E. T. T., Randolph.—Three cans, some sold at retail and the rest to "A." No diphtheria on his premises or among his customers.

O. H., Milton.—Seven cans, all sold to "A." No diphtheria.

J. M. B., Milton.—Four or five quarts, all sold to "A." No diphtheria.

C. F. J., Milton.—Twenty-seven cans, seventeen sold to "A" and ten to a dealer in Hyde Park, whom we will designate as "B."

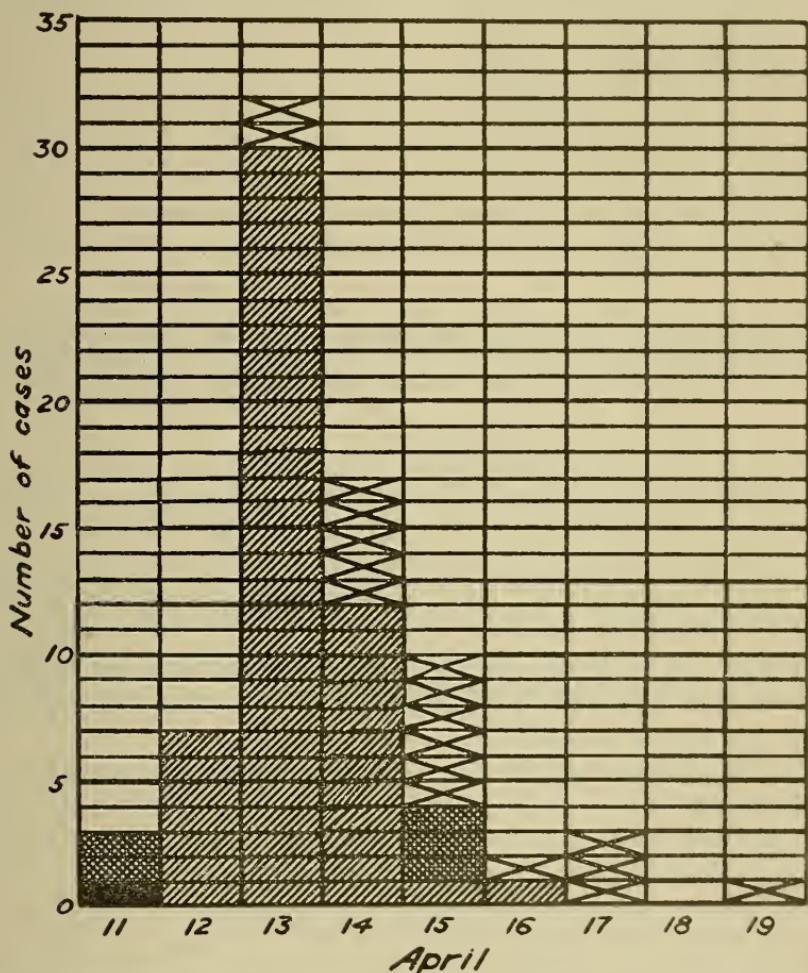
Inquiry as to the existence of diphtheria on the premises of C. F. J. revealed the fact that his grandchild was seized with the disease on April 11; that the cooler in which the milk was mixed was washed in the house, and that this office was performed by the person who had the care of the sick child.

It appeared probable that herein lay the solution of the problem; but the absence of any reported outbreak in Hyde Park offered an obvious complication, since more than one-third of C. F. J.'s output was delivered to families in that town by dealer "B." On April 14, however, four cases; on April 15, five cases; on April 16, 1 case; on April 17, 3 cases, and on April 19, 1 case, or fourteen in all, were reported to the board of health of Hyde Park, all of which, and 2 that had been reported on April 13 without exciting comment, proved to be in families supplied by "B."

Prompt action on the part of the local authorities of Milton in excluding from sale the milk of C. F. J. brought the outbreak to an immediate close. The incidence of the cases is shown by the accompanying diagram. It will be noted that in the three places concerned there occurred, between April 11 and 19, 5 cases among families not supplied by "A" or "B," namely, 2 on April 11 and 3 on April 15. One of the

former was reported in Dorchester, the other in Milton; and the 3 cases reported on April 15 were all in the same household with, and secondary to, the latter.

*Outbreak of Diphtheria
in
Milton, Dorchester & Hyde Park.*



- Case at place of milk production
- ▨ Cases on A's route in Milton & Dorchester
- ☒ Cases on B's route in Hyde Park
- ▩ Cases on other milk routes

There were, then, between April 12 and 19, inclusive, in the three places mentioned, 72 cases of the disease, all but 3 of which occurred in families supplied by two dealers, who obtained their milk from a man in whose household a child was seized on April 11; and the 3 cases not connected with this supply were secondary to another case reported on the same day. The fact that the outbreak in Hyde Park occurred later than that in Dorchester and Milton may perhaps be due to the fact that dealer "B" called for his share of C. F. J.'s milk in the evening and sold it on the following day, while dealer "A" came for his in the morning and disposed of it at once.

It is of further interest that C. F. J. himself came down with the disease after the outbreak had nearly subsided, and that dealer "A's" son, who drank milk from C. F. J., was one of the earliest victims. The partner of dealer "B" was seized on April 18, and at about the same time also another member of his household.

AN EPIDEMIC OF SCARLET FEVER IN GARDNER, DUE, APPARENTLY, IN PART TO CONTAMINATED MILK.

During the months of January and February there were a number of scattered cases of scarlet fever (9 in all) in the town of Gardner. In March there was a sudden rise in the number of cases, 46 being reported, 18 of which occurred in the week ended March 7, and 11 during the week ended March 14.

The cases were scattered over the entire town, and were not confined to any one class; but more than half (53.6) of those seized were children between the ages of one and five years.

When the assistance of the State Board of Health was requested in ascertaining the source of the infection and putting an end to the outbreak, the total number of cases had reached (April 17) 69. There were four families with 3 cases each, and sixteen with 2 cases each. Fifty of the cases were primary and 19 were secondary.

The milk supplied to the families in which the cases occurred was distributed by eighteen different dealers, but during the height of the outbreak most of the victims were supplied by one dealer, who distributes about twenty cans of milk daily, which he produces on his own farm, buying none whatever. Part of the milk was delivered at this time in cans and partly in bottles. The bottles, cans, milk pails and other utensils were usually washed by his wife, but those which were returned clean were refilled without further washing. During the month of

January, scarlet fever had occurred in four of the families which he supplied, and on February 13 the disease was reported in a family by whom the bottles were returned in so clean a condition that he regarded it unnecessary to cause them to be washed again. On February 19, 2 cases of scarlet fever occurred in his own family, and as soon as the diagnosis was established, his milk room was isolated. He was given a disinfectant bath of a weak solution of corrosive sublimate, and was allowed to continue the distribution of milk, on condition that he should not enter his house. This condition he violated, and, because a number of the families supplied by him became affected, the board of health excluded his milk from public sale early in March.

Of the 30 cases which occurred while the epidemic was at its height, 9 were supplied by a contractor who had more than seven hundred customers. His supply was obtained from twenty-five different sources, at none of which could any history of scarlet fever during the preceding six months be obtained.

Of the total number of cases, 24 occurred in school children in eight different schools. The largest number occurring in any one school was 5, and the victims were scattered about in four rooms.

**ADDITIONAL PROPRIETARY PREPARATIONS ADVERTISED
AS UNSALABLE AT RETAIL.**

Anglo-American Medicine Company's Catarrhal Powder, Anglo-American Medicine Company, Chicago, Toronto.

Maltine with Coca Wine, Maltine Manufacturing Company, New York.

MONTHLY BULLETIN



OF THE

STATE BOARD OF HEALTH

OF

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING JUNE 1, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —				
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Phtisis.	Diphtheria.	Typhoid Fever.
Boston,	609,761	246	58	51	27	24	3	2
Worcester,	132,240	38	8	6	4	2	—	2
Fall River,	106,123	30	18	8	8	5	—	1
Cambridge,	99,745	26	8	4	4	2	—	—
Lowell,	96,380	31	9	9	6	7	—	—
Lynn,	80,743	31	9	4	—	3	—	—
New Bedford,	79,744	20	5	6	2	6	—	—
Springfield,	78,707	25	6	3	2	1	—	1
Lawrence,	76,000	34	9	7	4	4	—	—
Somerville,	72,581	16	4	2	1	1	1	—
Holyoke,	51,730	19	6	2	8	1	—	—
Brockton,	51,289	13	3	1	—	—	1	—
Malden,	39,941	10	6	1	—	—	—	1
Chelsea,	38,659	11	4	1	—	—	—	—
Salem,	38,316	9	2	1	2	1	—	—
Newton,	38,209	7	—	2	1	4	—	—
Haverhill,	38,095	11	3	6	—	1	—	—
Fitchburg,	33,636	5	1	—	1	—	—	—
Everett,	31,274	6	2	—	—	—	—	—
Taunton,	30,967	—	—	—	—	—	—	—
Quincy,	29,944	1	—	—	—	—	—	—
Waltham,	27,493	7	—	—	—	—	—	—
Pittsfield,	26,425	7	0	2	—	1	—	1
Gloucester,	26,011	5	1	—	1	—	—	—
Brookline,	25,003	6	—	—	1	—	—	—
North Adams,	22,150	5	2	—	1	—	—	—
Chicopee,	20,615	7	4	1	1	—	—	—
Northampton,	20,508	10	3	1	—	1	—	—
Medford,	20,294	5	1	—	1	—	—	—
Beverly,	15,794	6	—	—	1	—	—	—
Leominster,	15,139	1	—	—	—	—	—	—
Hyde Park,	15,050	5	1	1	—	—	—	—
Melrose,	14,867	3	0	—	1	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—
Woburn,	14,462	3	—	—	—	—	—	—
Marlborough,	14,263	1	0	—	—	—	—	—
Westfield,	14,169	3	1	1	—	—	1	—
Peabody,	13,787	—	—	—	—	—	—	—
Revere,	13,697	6	—	2	—	2	—	—
Attleborough,	13,294	3	0	—	1	—	—	—
Clinton,	13,105	3	0	—	—	—	—	—
Adams,	13,072	3	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—
Watertown,	11,946	1	0	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—
Weymouth,	11,691	2	0	1	—	1	—	—
Framingham,	11,648	9	2	1	—	—	—	—
Southbridge,	11,416	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,203,813	690	176	124	76	68	9	5	4
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING JUNE 8, 1907.

CITIES AND TOWNS.	Population Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fections Dis- eases,	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	197	47	34	27	21	2	1	-
Worcester,	132,240	38	11	8	7	3	2	-	-
Fall River,	106,123	34	12	6	5	6	-	-	-
Cambridge,	99,745	29	3	4	4	1	1	-	-
Lowell,	96,380	33	6	8	5	6	1	-	-
Lynn,	80,743	29	3	6	-	4	-	1	1
New Bedford,	79,744	24	4	5	1	4	-	-	-
Springfield,	78,707	26	2	6	1	3	-	-	-
Lawrence,	76,000	27	7	4	3	2	-	-	1
Somerville,	72,581	16	4	1	2	1	-	-	-
Holyoke,	51,730	23	7	6	7	3	1	-	-
Brockton,	51,289	10	1	-	-	-	-	-	-
Malden,	39,941	10	1	2	-	2	-	-	-
Chelsea,	38,659	6	1	-	1	-	-	-	-
Salem,	38,316	15	2	2	1	2	-	-	-
Newton,	38,209	10	1	-	1	-	-	-	-
Haverhill,	38,095	20	5	1	6	1	-	-	-
Fitchburg,	33,636	11	3	1	-	1	-	-	-
Everett,	31,274	4	2	2	-	1	-	-	-
Taunton,	30,967	-	-	-	-	-	-	-	-
Quincy,	29,944	9	1	1	1	1	-	-	-
Waltham,	27,493	6	2	1	1	-	1	-	-
Pittsfield,	26,425	12	3	1	3	1	-	-	-
Gloucester,	26,011	-	-	-	-	-	-	-	-
Brookline,	25,003	4	-	1	-	-	-	-	-
North Adams,	22,150	8	1	2	-	1	-	-	1
Chicopee,	20,615	3	2	-	1	-	-	-	-
Northampton,	20,508	8	2	1	1	1	-	-	-
Medford,	20,294	5	1	-	-	-	-	-	-
Beverly,	15,794	5	1	1	-	1	-	-	-
Leominster,	15,139	3	1	-	-	-	-	-	-
Hyde Park,	15,050	0	-	-	-	-	-	-	-
Melrose,	14,867	7	0	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	3	-	-	-	-	-	-	-
Marlborough,	14,263	3	2	-	-	-	-	-	-
Westfield,	14,169	3	1	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	2	1	-	-	-	-	-	-
Attleborough,	13,294	-	-	-	-	-	-	-	-
Clinton,	13,105	2	0	-	-	-	-	-	-
Adams,	13,072	6	1	1	-	-	-	1	-
Gardner,	12,528	-	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	4	0	2	-	1	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	2	0	-	1	-	-	-	-
Framingham,	11,648	6	1	2	1	1	-	1	-
Southbridge,	11,416	1	-	1	-	-	1	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,175,926	664	142	110	80	68	10	5	2
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WEEK ENDING JUNE 15, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	210	55	43	25	26	4	—	1	1
Worcester,	132,240	42	9	12	4	4	—	—	—	—
Fall River,	106,123	36	13	6	9	3	—	—	—	—
Cambridge,	99,745	21	4	3	1	3	—	—	—	—
Lowell,	96,380	32	6	5	5	3	—	—	—	—
Lynn,	80,743	19	1	5	—	—	—	—	—	—
New Bedford,	79,744	18	9	3	3	1	1	—	—	1
Springfield,	78,707	25	6	3	1	1	—	—	—	—
Lawrence,	76,000	21	6	4	1	3	—	—	—	—
Somerville,	72,581	19	2	2	—	—	—	1	1	—
Holyoke,	51,730	17	4	4	2	2	2	—	—	—
Brockton,	51,289	14	2	3	1	2	2	—	—	—
Malden,	39,941	14	3	2	—	2	—	—	—	—
Chelsea,	38,659	12	2	3	—	3	—	—	—	—
Salem,	38,316	17	4	—	—	—	—	—	—	—
Newton,	38,209	8	1	4	—	—	—	—	—	—
Haverhill,	38,095	12	7	5	—	—	2	2	—	—
Fitchburg,	33,636	5	1	—	1	—	—	—	—	—
Everett,	31,274	10	2	2	—	—	—	—	1	—
Taunton,	30,967	15	5	4	2	4	—	—	—	—
Quincy,	29,944	14	0	1	—	1	—	—	—	—
Waltham,	27,493	4	—	—	—	—	—	—	—	—
Pittsfield,	26,425	7	1	1	—	1	—	—	—	—
Gloucester,	26,011	1	—	—	—	—	—	—	—	—
Brookline,	25,003	—	—	—	—	—	—	—	—	—
North Adams,	22,150	3	1	1	—	1	—	—	—	—
Chicopee,	20,615	12	7	1	—	2	—	—	1	—
Northampton,	20,508	9	1	1	—	—	—	—	—	—
Medford,	20,294	5	1	—	—	—	—	—	—	—
Beverly,	15,794	5	—	—	—	—	—	—	—	—
Leominster,	15,139	6	1	—	—	—	—	1	—	—
Hyde Park,	15,050	2	0	—	—	—	—	—	—	—
Melrose,	14,867	—	—	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	2	—	—	—	—	—	—	—	—
Marlborough,	14,263	3	—	1	—	—	—	1	—	—
Westfield,	14,169	4	—	1	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	3	2	—	1	—	—	—	—	—
Attleborough,	13,294	3	0	—	—	—	—	—	—	—
Clinton,	13,105	3	0	—	—	—	—	—	—	—
Adams,	13,072	4	1	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—	—
Watertown,	11,946	3	0	—	—	1	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	0	—	—	—	—	—	—	—	—
Framingham,	11,648	3	1	—	—	—	—	—	—	—
Southbridge,	11,416	2	1	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,206,328	665	162	119	62	69	13	4	2
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WEEK ENDING JUNE 22, 1907.

CITIES AND TOWNS.	Population, estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	204	64	45	30	23	2	-	3
Worcester,	132,240	50	12	28	22	1	1	-	-
Fall River,	106,123	35	19	6	2	1	-	-	-
Cambridge,	99,745	22	5	5	4	-	-	-	-
Lowell,	96,380	37	9	1	1	1	-	-	-
Lynn,	80,743	21	3	3	3	1	-	-	-
New Bedford,	79,744	17	6	1	1	1	-	-	-
Springfield,	78,707	22	9	3	2	1	-	-	-
Lawrence,	76,000	23	4	1	1	1	-	-	-
Somerville,	72,581	15	2	1	1	1	-	-	-
Holyoke,	51,730	19	4	3	4	2	1	-	-
Brockton,	51,289	10	2	1	1	1	-	-	-
Malden,	39,941	11	3	2	2	-	-	-	-
Chelsea,	38,659	13	3	1	1	1	-	-	-
Salem,	38,316	8	1	1	1	1	-	-	-
Newton,	38,209	8	1	2	1	1	-	-	-
Haverhill,	38,095	6	1	-	-	-	-	-	-
Fitchburg,	33,636	-	-	-	-	-	-	-	-
Everett,	31,274	3	1	-	-	-	-	-	-
Taunton,	30,967	18	2	6	3	3	-	-	-
Quincy,	29,944	5	2	-	1	2	-	-	-
Waltham,	27,493	10	1	2	1	2	-	-	-
Pittsfield,	26,425	11	-	1	-	-	-	-	-
Gloucester,	26,011	5	-	2	-	-	-	-	-
Brookline,	25,003	10	1	2	-	-	-	-	-
North Adams,	22,150	10	2	3	2	3	-	-	-
Chicopee,	20,615	4	2	-	1	-	-	-	-
Northampton,	20,508	14	2	2	1	2	-	-	-
Medford,	20,294	5	1	1	-	-	-	-	-
Beverly,	15,794	2	-	-	-	-	-	-	-
Leominster,	15,139	2	1	1	-	-	-	-	-
Hyde Park,	15,050	1	0	-	-	-	-	-	-
Melrose,	14,867	4	0	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	6	1	1	-	-	-	-	-
Marlborough,	14,263	3	1	-	-	-	-	-	-
Westfield,	14,169	5	1	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	-	-	-	-	-	-	-	-
Attleborough,	13,294	-	-	-	-	-	-	-	-
Clinton,	13,105	4	2	-	-	-	-	-	-
Adams,	13,072	3	1	-	-	-	-	-	-
Gardner,	12,528	-	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	3	0	1	1	1	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	2	0	-	-	-	-	-	-
Framingham,	11,648	3	1	-	-	-	-	-	-
Southbridge,	11,416	2	-	-	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, .	2,185,571	656	169	109	63	54	7	1	5
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WEEK ENDING JUNE 29, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Milkitis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	214	66	48	23	25	—	1	6
Worcester,	132,240	37	9	12	1	7	—	—	1
Fall River,	106,123	40	12	12	2	6	—	—	—
Cambridge,	99,745	12	1	3	1	3	—	—	—
Lowell,	96,380	36	14	3	3	1	2	1	—
Lynn,	80,743	15	3	4	—	—	—	—	—
New Bedford,	79,744	26	11	3	1	1	1	—	—
Springfield,	78,707	28	4	4	2	1	—	—	—
Lawrence,	76,000	25	—	6	1	3	4	1	—
Somerville,	72,581	18	3	4	2	—	—	—	—
Holyoke,	51,730	19	9	2	1	1	—	—	—
Brockton,	51,289	11	3	—	—	—	—	—	—
Malden,	39,941	—	—	—	—	—	—	—	—
Chelsea,	38,659	12	3	1	1	1	—	—	—
Salem,	38,316	12	2	1	—	—	—	—	—
Newton,	38,209	6	—	—	—	—	—	—	—
Haverhill,	38,095	6	—	1	—	—	1	—	—
Fitchburg,	33,636	—	—	2	—	—	—	—	—
Everett,	31,274	5	—	1	—	—	1	—	—
Taunton,	30,967	14	—	1	—	2	—	—	—
Quincy,	29,944	6	2	—	2	—	1	—	—
Waltham,	27,493	11	1	2	—	—	1	1	—
Pittsfield,	26,425	10	2	1	—	—	1	—	—
Gloucester,	26,011	5	2	—	—	—	—	—	—
Brookline,	25,003	6	1	2	1	2	—	—	—
North Adams,	22,150	7	2	2	—	2	—	—	—
Chicopee,	20,615	7	5	1	—	—	1	—	—
Northampton,	20,508	4	1	—	—	—	—	—	—
Medford,	20,294	3	1	—	—	—	—	—	—
Beverly,	15,794	2	—	1	—	—	1	—	—
Leominster,	15,139	2	—	—	2	—	—	—	—
Hyde Park,	15,050	4	1	1	—	—	1	—	—
Melrose,	14,867	2	1	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	5	1	1	—	—	1	—	—
Marlborough,	14,263	—	—	—	—	—	—	—	—
Westfield,	14,169	—	—	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	5	3	2	—	—	1	—	—
Attleborough,	13,294	3	0	1	—	—	1	—	—
Clinton,	13,105	—	—	—	—	—	—	—	—
Adams,	13,072	6	1	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	3	2	1	—	1	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	4	0	2	—	—	1	—	—
Framingham,	11,648	—	—	—	—	—	—	—	—
Southbridge,	11,416	10	1	3	—	—	3	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,144,189	661	179	127	49	75	6	2	7
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF JUNE 1, 8, 15, 22 AND 29, 1907.

DISEASE.	Place.	WEEK ENDING —				
		June 1.	June 8.	June 15.	June 22.	June 29.
Cerebro-spinal meningitis, .	Boston, . . .	10	4	5	11	4
	Cambridge, . . .	1	—	—	1	—
	Chelsea, . . .	1	—	—	—	—
	Everett, . . .	—	1	—	—	—
	Hyde Park, . . .	1	—	—	—	—
	Holyoke, . . .	—	1	—	—	—
	Lowell, . . .	—	—	1	—	—
	Lynn, . . .	—	—	2	—	1
	Medford, . . .	—	—	—	1	—
	Newton, . . .	—	—	1	2	—
	Somerville, . . .	—	—	—	1	—
	Springfield, . . .	1	—	1	—	—
	Watertown, . . .	—	1	—	—	1
	Weymouth, . . .	—	—	—	—	1
	Worcester, . . .	—	2	3	1	1
Erysipelas,	Boston, . . .	4	2	1	—	1
	Brockton, . . .	—	—	1	—	—
	Lowell, . . .	—	—	—	—	1
	Lynn, . . .	1	—	—	—	—
	Somerville, . . .	—	—	—	—	1
	Worcester, . . .	—	—	—	1	—
Scarlet fever,	Boston, . . .	1	3	—	3	2
	Brookline, . . .	—	—	—	1	—
	Cambridge, . . .	—	1	—	—	—
	Everett, . . .	—	—	1	—	—
	Fall River, . . .	—	—	—	1	—
	Framingham, . . .	1	—	—	—	—
	Holyoke, . . .	1	—	—	—	—
	Lowell, . . .	—	1	—	—	—
	Pittsfield, . . .	—	—	—	1	—
	Springfield, . . .	—	1	—	—	2
	Worcester, . . .	1	—	—	—	—
Whooping cough,	Boston, . . .	1	—	1	—	2
	Lowell, . . .	1	—	—	—	—
	Haverhill, . . .	—	—	1	—	—
	Revere, . . .	—	—	—	—	1
	Springfield, . . .	—	1	—	—	—
	Worcester, . . .	—	1	1	—	—
Influenza,	Haverhill, . . .	1	—	—	—	—

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF JUNE
1, 8, 15, 22 AND 29, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —				
	June 1.	June 8.	June 15.	June 22.	June 29.
Diphtheria,	154	127	199	172	116
Measles,	153	240	221	233	187
Scarlet fever,	128	146	151	101	95
Typhoid fever,	23	16	21	23	23
Tuberculosis,	90	86	69	84	85
Cerebro-spinal meningitis,	14	18	15	9	4
Erysipelas,	1	1	0	1	1
Whooping cough,	9	5	2	0	0
Chicken pox,	—	1	—	6	3
Smallpox,	4	1	4	2	—
Malaria,	1	—	—	—	1

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of June, 1907: —

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Butter,	7	1	8	Maple syrup,	1	—	1
Canned soup,	2	—	2	Meat products: —			
Cheese,	2	—	2	Canned meats,	2	—	2
Cider,	4	2	6	Hamburg steak,	4	—	4
Cocoa,	1	—	1	Head cheese,	3	—	3
Coffee,	3	—	3	Lambs' tongues,	1	—	1
Condensed milk,	3	1	4	Corned beef,	1	—	1
Cream,	1	—	1	Sausages,	6	1	7
Cream of tartar,	3	—	3	Milk,	179	22	201
Drugs,	46	11	57	Molasses,	1	—	1
Extract of lemon,	2	—	2	Pickles,	31	26	57
Grape juice,	1	—	1	Saleratus,	1	—	1
Ginger beer,	1	—	1	Salad dressing,	2	—	2
Honey,	2	—	2	Table sauce,	1	1	2
Jams and jellies,	3	1	4	Wine,	2	—	2
Ale,	1	—	1	Total,	324	66	390
Malt extract,	3	—	3				
Maple sugar,	4	—	4				

The samples of drugs found to be adulterated were: extractum glycyrrhizæ, extractum zingiberis, spiritus camphoræ, tinctura iodi, tinctura zingiberis and several proprietary preparations.

The cities and towns in which samples were collected were: Adams, Attleborough, Boston, Beverly, Braintree, Brookline, Cambridge, Chelsea, Duxbury, Gloucester, Lawrence, Lowell, Lynn, Marblehead, Newburyport, Newton, North Adams, Plymouth, Salem, Somerville, Springfield, Swampscott, Taunton, Waltham, Wayland, Williamstown and Worcester.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Thirty-seven convictions were secured during the month of June, 1907, for selling adulterated food and drugs and cocaine preparations, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Wm. G. C. Bell,	Roxbury,	Crown Catarrh Cure.
2	Fred W. Connolly (Connolly & Davis).	Dorchester, .	Crown Catarrh Cure.
3	Jeremiah F. Donovan, . . .	Boston, . . .	I. C. R. Catarrh Cure.
4	Nathan L. Graves, . . .	Boston, . . .	Standard Catarrh Powder.
5	Abiel T. Luscomb, . . .	Boston, . . .	I. C. R. Catarrh Powder.
6	Timothy J. Murphy, . . .	Boston, . . .	Dr. Birney's Catarrh Powder.
7	Percy R. Robbins, . . .	Roxbury, . . .	Dr. Birney's Catarrh Powder.
8	Frank N. McDonald, . . .	Boston, . . .	I. C. R. Catarrh Cure.
9	Geo. L. York, . . .	Roxbury, . . .	Dr. Birney's Catarrh Cure.
10	Francis E. Boyd, . . .	Charlestown, . . .	Metcalf's Coca Wine.
11	Chas. H. Bradbury, . . .	Roxbury, . . .	Metcalf's Coca Wine.
12	Frank E. Studley, . . .	Boston, . . .	Metcalf's Coca Wine.
13	Samuel A. Oppe, M.D., . . .	Roxbury, . . .	Metcalf's Coca Wine.
14	John S. Culver, . . .	Boston, . . .	Vin Mariani.
15	Martin J. McIntire, . . .	Boston, . . .	Vin Mariani.
16	Hjalmar A. Brown, . . .	Gloucester, . . .	Vin Mariani.
17	Jeremiah F. Donovan, . . .	Boston, . . .	Fluid extract ginger.
18	Walter A. Clement, . . .	Roxbury, . . .	Hamburg steak.
19	Isaac Mastowitz, . . .	Roxbury, . . .	Hamburg steak.
20	Joseph Arcuri, . . .	Springfield, . . .	Maple sugar.
21	John Floros, . . .	Gloucester, . . .	Maple sugar.
22	James Jarnesey, . . .	Gloucester, . . .	Maple sugar.
23	Vorticetse Nichols, . . .	Gloucester, . . .	Maple sugar.
24	Peter Statuto, . . .	Lowell, . . .	Maple sugar.
25	Arthur M. Benedict, . . .	Pittsfield, . . .	Milk (total solids, 11.25).
26	Amos P. Best, . . .	Dracut, . . .	Milk (total solids, 9.22). ¹
27	W. N. Coe, . . .	Pittsfield, . . .	Milk (total solids, 11.43).
28	Geo. H. Paynter, . . .	Gloucester, . . .	Milk (total solids, 10.23). ²
29	Geo. H. Paynter, . . .	Gloucester, . . .	Milk (total solids, 10.23). ²
30	Peter Oulman, . . .	North Adams, . . .	Milk (total solids, 11.33).
31	James H. Smith, . . .	Pittsfield, . . .	Milk (total solids, 10.91).
32	John E. Witherspoon, . . .	Boston, . . .	Pickles.
33	John E. Witherspoon, . . .	Boston, . . .	Pickles.
34	John E. Witherspoon, . . .	Boston, . . .	Pickles.
35	John E. Witherspoon, . . .	Boston, . . .	Pickles (onions).
36	John E. Witherspoon, . . .	Boston, . . .	Strawberry preserves.
37	Rufus L Clark (Libby, McNeill & Libby).	Boston, . . .	Pickles.

¹ Watered.

² Watered and colored with Annatto.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR JUNE, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
5779	"Pomona Valley Company Campaign Cider."	Lover's Leap Spring Water Company, Lynn, Mass.,	Largely carbonated and sweetened water.
5656	Carbonated sweet cider,	Coleman & Keating, 102 Sudbury street, Boston, Mass.,	Largely carbonated and sweetened water.
5726	"Victor," brand wild strawberry preserved fruit.	Saville, Somes & Co., Boston, Mass.,	Preserved with benzoic acid.
5692	Fancy sweet mixed pickles, "A-L-D-A-Brand,"	Cobb, Aldrich & Co., Boston, Mass.,	Preserved with benzoic acid.
5296	Sweet pickles, "Lexington Brand,"	Wason & Co., Boston, Mass.,	Preserved with benzoic acid.
5694	Sweet gherkins,	Ginter Grocery Company, Boston, Mass.,	Preserved with benzoic acid.
5651	"Our Favorite Catsup,"	Erie Preserving Company, Buffalo, N. Y.,	Preserved with benzoic acid; percentage not stated on label.
8847 N	Milk,	Nelson Marlow, North Adams, Mass.,	Total solids 13.02 per cent.; preserved with formaldehyde.
4402 M	Milk,	{ Mitchell J. Brouillette, Norton, Mass.,	Total solids 13.89 per cent.; preserved with a boron compound.
4404 M	Milk,		Total solids 13.48 per cent.; preserved with a boron compound.
4408 M	Milk,	Benj. J. Morlock, Whittenton, Mass.,	Total solids 13.47 per cent.; preserved with formaldehyde.
4478 M	Milk,	{ John C. Moynihan, Newburyport, Mass.,	Total solids 10.26 per cent.; preserved with formaldehyde and contained added water.
4480 M	Milk,		Total solids 11.43 per cent.; preserved with formaldehyde and contained added water.
5793	Milk,	{ Walter H. Brooks, Lawrence, Mass.,	Total solids 10.33 per cent.; contained added water.
5794	Milk,		Total solids 10.28 per cent.; contained added water.

INSPECTION OF DAIRIES.

During the month of June, 1907, 232 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Brantree,	21	9	42.86	12	57.14
Canton,	22	13	59.09	9	40.91
Cohasset,	11	6	54.55	5	45.45
Easton,	38	17	44.74	21	55.26
Hingham,	14	8	57.14	6	42.86
Holbrook,	11	8	72.73	3	27.27
Mansfield,	27	17	62.96	10	37.04
Quincy,	37	13	35.14	24	64.86
Randolph,	20	7	35.00	13	65.00
Scituate,	1	1	—	—	—
Weymouth,	30	13	43.33	17	56.67

Total number of dairies examined,	232
Number found to be free from objectionable conditions,	112
Number to which letters were sent,	120
Total number of conditions to which attention was called,	461
Percentage of dairies which passed inspection,	48.28

The names of the owners of the dairies found to be worthy of commendation follow:—

Braintree.

Dyer, J. Alonzo.	Matthews, Charles W.	Smith, Frank.
Hayden, F. L.	Morrow, A. L.	Stocker, Robert R.
Hunt Bros.	Sanford, F. H.	Thayer, Elmer F.

Canton.

Andrews, George.	Draper, Joseph.	Harding, Charles.
Crocker, J. B.	French, C. H.	Hines, D. A. C.
Cushman, Isaac.	Galligan, M. H.	Sawyer, L.
Dalton, James.	Gerald, F. E.	Willis, (Mrs.) Joseph.
Dean, John H.		

Cohasset.

Bates, O. H.	Mealey, George W.	Warwick, L.
DeMello, A. C.	Spaulding, S. S.	Whitney, (Hon.) H. M.

Easton.

Alger, Horace.	Gibling, William C.	Maguire, J. S.
Alger, Nathan J.	Gooch, A. F.	Marshall, John B.
Ervin, John.	Heath, H. W.	Pearson, Thorae.
Ervin, W. G.	Hewitt, Herbert A.	Randall, Charles.
Ervin, William.	Holbrook, J.	Wood, Alexander.
Geddes, George E.	Lindell, Charles.	

Hingham.

Damstre, Sytse.
Fearing & Schultz.
Foley, C.

Jordan, H. G.
Litchfield, Samuel A.
Puffer, George C.

Stoddard, Harry.
Taylor, John.

Belcher, L. H.
French, Allan.
Holbrook, Elmer.

Newcomb, R.
Poole, C. A.
Sands, Daniel.

West, William.
Williams, Fred W.

Atwood, John M.
Card, (Mrs.) S. W.
Carlson, Herman.
Coney, James.
Corrivan, Joseph.
Fisher Bros.

Fisher, Willard.
Flint, Benjamin.
Freeman, George B.
Guild, Elisha F.
Huber, Peter.
Hudson, H. P.

Hurley, Edward.
Lowney, Walter M.
Moseley, (Mrs.) I. L.
Parker, L. S.
Schultz, Herman.

Mansfield.

Andersen, A.
Fearing, W. B.
Finn, Edward B.
Harris, John F.
Hunter, C. E.

McDonald, Charles.
McGregor, A. D.
National Sailors Home.
Nowlands, J. M.

Taylor, (Estate) of G. W.
Thorpe, George F.
Sweeney, M.
White, M. C.

Randolph.

Cole, Charles H.
Ferguson, J. G. & R. G.
Gill, William.

Nelson Bros.
Powers, Charles R.

Wales, John.
Wales, Frank C.

Scituate.

Litchfield, R.

Weymouth.

Cowan, Frank.
Higgins, E. H.
Holmes, Frank.
Hunt, George A.
Lohne, L.

Loud, W. W.
Payne, J. L.
Pratt, F. A
Tabor, S.

Thompson, John H.
Tirrell, Austin.
Tirrell, Theron.
Young, George D.

HEALTH DISTRICTS AND STATE INSPECTORS OF HEALTH.

The Legislature of 1907 passed the following act:—

[CHAPTER 537.]

AN ACT TO PROVIDE FOR THE ESTABLISHMENT OF HEALTH DISTRICTS AND THE APPOINTMENT OF INSPECTORS OF HEALTH.

Be it enacted, etc., as follows:

SECTION 1. The state board of health shall, as soon as may be after the passage of this act, divide the Commonwealth into not more than fifteen districts, to be known as health districts, in such manner as it may deem necessary or proper for carrying out the purposes of this act.

SECTION 2. After the division aforesaid has been made, the governor, with the advice and consent of the council, shall appoint in each health district one practical and discreet person, learned in the science of medicine and hygiene, to be state inspector of health in that district. Every nomination for such office shall be made at least seven days prior to the appointment. The said state inspectors of health shall hold their offices for a period of five years from the time of their respective appointments, but shall be liable to removal from office by the governor and council at any time.

SECTION 3. Every state inspector of health shall inform himself respecting the sanitary condition of his district and concerning all influences dangerous to the public health or threatening to affect the same; he shall gather all information possible concerning the prevalence of tuberculosis and other diseases dangerous to the public health within his district, shall disseminate knowledge as to the best methods of preventing the spread of such diseases, and shall take such steps as, after consultation with the state board of health and the local state¹ authorities, shall be deemed advisable for their eradication; he shall inform himself concerning the health of all minors employed in factories within his district, and, whenever he may deem it advisable or necessary, he shall call the ill health or physical unfitness of any minor to the attention of his or her parents or employers and of the state board of health.

SECTION 4. The state inspectors of health shall be under the general supervision of the state board of health and shall perform such duties other than those hereby imposed upon them as the said board from time to time shall determine. They shall keep a record of their proceedings and observations, shall annually make a report of the same to said board on or before the thirty-first day of October, shall from time to time furnish said board with such information as it may require touching circumstances affecting the public health in their respective districts, and shall in every instance where

¹ This is the phraseology of the bill as enacted. In its original form, the expression used was "local health authorities" (House Bill 1408), but in its next form the word *state* was substituted, probably through inadvertence.

written suggestions are made by them to the local authorities ~~send copies of~~ such suggestions to said board.

SECTION 5. The state inspectors of health shall, under the direction of the state board of health and in place of the inspection department of the district police, enforce the provisions of section forty-one of chapter one hundred and four of the Revised Laws so far as said section provides that factories shall be well ventilated and kept clean, sections forty-one, forty-four and forty-seven to sixty-one, inclusive, of chapter one hundred and six of the Revised Laws, chapter three hundred and twenty-two of the acts of the year nineteen hundred and two, chapter four hundred and seventy-five of the acts of the year nineteen hundred and three, chapter two hundred and thirty-eight of the acts of the year nineteen hundred and five, and chapter two hundred and fifty of the acts of the year nineteen hundred and six; and the powers and duties heretofore conferred and imposed upon the members of said inspection department of the district police by section eight of chapter one hundred and eight of the Revised Laws in respect to the foregoing sections and acts, and in respect to all acts in amendment thereof or in addition thereto, and in respect to any other laws, are hereby conferred and imposed upon said state inspectors of health or such other officers as the state board of health may from time to time appoint: *provided, however,* that neither said board of health nor any inspector thereof shall have authority to require structural alterations to be made in buildings, but shall report the necessity therefor to the inspection department of the district police. Wherever in said provisions of law the words "inspector" or "inspectors of factories and public buildings", "inspection department of the district police", "inspector" or "inspectors of the district police", "district police", "factory inspector" or "inspectors", and "member" or "members of the district police" occur, they shall be taken to mean state inspector or inspectors of health. Wherever the words "chief of the district police" occur, they shall be taken to mean the state board of health.

SECTION 6. The governor, with the advice and consent of the council, shall establish the salaries of said state inspectors of health, having regard in each district to the extent of territory, the number of inhabitants, the character of the business there carried on, and the amount of time likely to be required for the proper discharge of the duties. The salaries thus established shall be paid from the treasury of the Commonwealth monthly.

SECTION 7. There may be expended out of the treasury of the Commonwealth annually, for the purposes specified in this act, for salaries, a sum not exceeding twenty-five thousand dollars, and for other expenses, a sum not exceeding five thousand dollars.

SECTION 8. For the purpose of carrying out the provisions of this act the state board of health may employ from time to time experts in sanitation.

SECTION 9. This act shall take effect upon its passage. [Approved June 19, 1907.]

The chapters and sections referred to in section 5 are presented below in their amended form:—

RELATIVE TO LIGHTING, VENTILATION AND CLEANLINESS OF FACTORIES.

Revised Laws, Chapter 104, Section 41 ("so far as said section provides that factories shall be well lighted and kept clean"), as amended by Section 2 of Chapter 503 of the Acts of 1907.

All factories and workshops shall be well lighted, well ventilated and kept clean.

Rerised Laws, Chapter 106, Sections 51-53.

(Factories and workshops shall be adequately ventilated, and, if necessary, mechanical appliances therefor shall be installed.)

SECTION 51. A factory in which five or more persons and a workshop in which five or more women or young persons are employed shall, while work is carried on therein, be so ventilated that the air shall not become so impure as to be injurious to the health of the persons employed therein and so that all gases, vapors, dust or other impurities injurious to health, which are generated in the course of the manufacturing process or handicraft carried on therein shall, so far as practicable, be rendered harmless.

SECTION 52. If, in a workshop or factory which is within the provisions of the preceding section, any process is carried on by which dust is caused which may be inhaled to an injurious extent by the persons employed therein, and it appears to a state inspector of health that such inhalation would be substantially diminished without unreasonable expense by the use of a fan or by other mechanical means, such fan or other mechanical means, if he so directs, shall be provided, maintained and used.

SECTION 53. A criminal prosecution shall not be instituted for any violation of the provisions of the two preceding sections unless such employer neglects, for four weeks after the receipt of a notice in writing, to make such changes in his factory or workshop as shall be ordered by a state inspector of health.

Acts of 1903, Chapter 475.

(Emery wheels and belts and buffing wheels and belts shall be provided with hoods, suction pipes and fans or blowers, for the protection of employees against dust.)

SECTION 1. Any person, firm or corporation operating a factory or workshop in which emery wheels or belts or buffing wheels or belts injurious to the health of employees are used shall, within three months after this act takes effect, provide such wheels and belts with a hood or hopper connected with suction pipes, and with fans or blowers, in accordance with the provisions hereinafter contained, which apparatus shall be placed and operated in such a manner as to protect any person or persons using any such wheel or belt from the particles or dust produced by the operation thereof, and to convey the said particles or dust either outside of the building or to some receptacle so placed as to receive and confine the said particles or dust.

SECTION 2. Every such wheel shall be fitted with a sheet iron or cast iron hood or hopper of such form and so placed that the particles or dust produced by the operation of the wheel or of any belt connected therewith shall fall or will be thrown into such hood or hopper by centrifugal force; and the fans or blowers aforesaid shall be of such size and shall be run at such speed as will produce a volume and velocity of air in the suction and discharge pipes sufficient effectually to convey all particles or dust from the hood or hopper through the suction pipes and so outside of the building or to a receptacle as aforesaid.

SECTION 3. The suction pipes and connections shall be suitable and efficacious, and such as shall be approved by the state inspectors of health.

SECTION 4. This act shall not apply to grinding machines upon which water is used at the point of grinding contact, nor to solid emery wheels used in saw mills or in planing mills or in other wood-working establishments, nor to any emery wheel six inches and under in diameter used in establishments where the principal business is not emery wheel grinding.

SECTION 5. It shall be the duty of the state inspectors of health, upon receiving notice in writing, signed by any person having knowledge of the facts, that any factory or workshop as aforesaid is not provided with the apparatus herein prescribed, to visit such factory or workshop and inspect the same, and for that purpose they are hereby authorized to enter any such factory or workshop during working hours; and if they ascertain, in the foregoing or in any other manner, that the owner, proprietor or manager of any such factory or workshop has failed to comply with the provisions of this act, they shall make complaint of the same in writing, before a court or judge having jurisdiction, and cause such owner, proprietor or manager to be proceeded against for violation of this act; and it is made the duty of the district attorney to prosecute all cases arising under this act.

SECTION 6. Any person failing to comply with any provision of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than twenty-five nor more than one hundred dollars, and in case of a second offence he shall be punished by the aforesaid fine, or by imprisonment in the county jail for a term not exceeding sixty days, or by both such fine and imprisonment.

RELATIVE TO WATER CLOSETS AND PRIVIES IN FACTORIES, WORKSHOPS AND OTHER ESTABLISHMENTS, SCHOOLHOUSES AND PUBLIC BUILDINGS; AND TO WASHING FACILITIES IN FOUNDRIES.

Revised Laws, Chapter 106, Sections 47-50.

(Factories, workshops and other places of employment shall be provided with sufficient and proper closets for both sexes.)

SECTION 47. Every factory in which five or more persons are employed, and every factory, workshop, mercantile or other establishment or office in which two or more children, under eighteen years of age or women are em-

ployed, shall be kept clean and free from effluvia arising from any drain, privy or nuisance, and shall be provided, within reasonable access, with a sufficient number of proper water closets, earth closets or privies; and whenever two or more males and two or more females are employed together, a sufficient number of separate water closets, earth closets or privies shall be provided for the use of each sex, and plainly so designated; and no person shall be allowed to use a closet or privy which is provided for persons of the other sex.

SECTION 48. The owner, lessee or occupant of any premises which are used as described in the preceding section shall make the changes necessary to conform thereto. If such changes are made upon the order of a state inspector of health by the occupant or lessee of the premises, he may, within thirty days after the completion thereof, bring an action against any other person who has an interest in such premises, and may recover such proportion of the expense of making such changes as the court adjudges should justly and equitably be borne by the defendant.

SECTION 49. If it appears to a state inspector of health that any act, neglect or fault in relation to any drain, water closet, earth closet, privy, ashpit, water supply, nuisance or other matter in a factory or workshop included under the provisions of section forty-seven, is punishable or remediable under the provisions of chapter seventy-five or any other law relative to the preservation of the public health, but not under the provisions of this chapter, he shall give notice in writing thereof to the board of health of the city or town in which such factory or workshop is situated, and such board of health shall thereupon inquire into the subject of the notice and enforce the laws relative thereto.

SECTION 50. A criminal prosecution shall not be instituted against a person for a violation of the provisions of sections forty-seven and forty-eight until four weeks after notice in writing by a state inspector of health of the changes necessary to be made to comply with the provisions of said sections has been sent by mail or delivered to such person, nor if such changes shall have been made in accordance with such notice. A notice shall be sufficient under the provisions of this section if given to one member of a firm, or to the clerk, cashier, secretary, agent or any other officer who has charge of the business of a corporation, or to its attorney; and in case of a foreign corporation, to the officer who has the charge of such factory or workshop; and such officer shall be personally liable for the amount of any fine if a judgment against the corporation is returned unsatisfied.

Acts of 1906, Chapter 250.

(Foundries shall be provided with adequate washing facilities and water closets.)

SECTION 1. The proprietor of every foundry engaged in the casting of iron, brass, steel or other metal, and employing ten or more men, shall establish and maintain, except in cities or towns where to do so would be impracti-

cable by reason of the absence of public or private sewerage or of any running water system, toilet room of suitable size and condition for the men to change their clothes therein, and provided with wash bowls, sinks or other suitable set appliances connected with running hot and cold water, and also a water closet connected with running water and separated from the said toilet room. The said water closet and toilet room shall be connected directly with the foundry building, properly heated, ventilated and protected, so far as may be reasonably practicable, from the dust of the foundry.

SECTION 2. Whoever fails to comply with the provisions of this act, after being requested so to do by a state inspector of health, shall be fined not more than fifty dollars for each offence.

SECTION 3. This act shall take effect on the first day of January in the year nineteen hundred and seven.

Revised Laws, Chapter 106, Sections 54 and 55.

(Every public building and every school house shall be properly provided with water closets, and shall be adequately ventilated.)

SECTION 54. Every public building and every school house shall be kept clean and free from effluvia arising from any drain, privy or nuisance, shall be provided with a sufficient number of proper water closets, earth closets or privies, and shall be ventilated in such a manner that the air shall not become so impure as to be injurious to health. The provisions of this section shall be enforced by the state inspectors of health.

SECTION 55. If it appears to a state inspector of health that further or different sanitary or ventilating provisions, which can be provided without unreasonable expense, are required in any public building or school house, he may issue a written order to the proper person or authority, directing such sanitary or ventilating provisions to be provided. A school committee, public officer or person who has charge of, owns or leases any such public building or school house who neglects for four weeks to comply with the order of such inspector shall be punished by a fine of not more than one hundred dollars. Whoever is aggrieved by the order of an inspector issued as above provided and relating to a public building or a school house may, within thirty days after the day of the service thereof, apply in writing to the board of health of the city or town to set aside or amend the order; and thereupon, the board, after notice to all parties interested, shall give a hearing upon such order and may alter, annul or affirm it.

RELATIVE TO PROVIDING SEATS FOR WOMEN EMPLOYEES.

Revised Laws, Chapter 106, Section 41.

A person who employs females in any manufacturing, mechanical or mercantile establishment shall provide suitable seats for their use, and shall permit the use of such seats by them when they are not necessarily

engaged in the active duties of their employment. Whoever violates the provisions of this section shall be punished by a fine of not less than ten nor more than thirty dollars for each offence.

RELATIVE TO SUPPLYING PURE DRINKING WATER TO EMPLOYEES.

Acts of 1902, Chapter 322.

SECTION 1. All manufacturing establishments in this commonwealth shall provide fresh and pure drinking water, to which their employees shall have access during working hours.

SECTION 2. Any corporation, association, firm or person owning, in whole or in part, managing, controlling or superintending any manufacturing establishment in which the provision of this act is violated shall, upon complaint of the board of health of the city or town, or of the selectmen of the town in which the establishment is located, be liable to a fine of one hundred dollars for each offence.

RELATIVE TO EMPLOYMENT OF MINORS IN THE MANUFACTURE OF ACIDS.

Revised Laws, Chapter 106, Section 44.

SECTION 44. The state board of health shall, upon the application of any citizen of the commonwealth, determine, after such investigation as it considers necessary, whether or not the manufacture of a particular acid is dangerous or injurious to the health of minors under eighteen years of age; and its decision shall be conclusive evidence thereof. Whoever employs a child under eighteen years of age in the manufacture of an acid after the state board of health has determined that such manufacture is dangerous or injurious to his health shall be punished by a fine of one hundred dollars for each offence.

RELATIVE TO KEEPING MEDICAL AND SURGICAL APPLIANCES IN FACTORIES.

Acts of 1907, Chapter 164.

SECTION 1. Every person, firm or corporation operating a factory or shop in which machinery is used for any manufacturing purpose, or for any other purpose except for elevators, or for heating or hoisting apparatus, shall at all times keep and maintain, free of expense to the employees, such a medical and surgical chest as shall be required by the local board of health of any city or town where such machinery is used, containing plasters, bandages, absorbent cotton, gauze, and all other necessary medicines, instruments and other appliances for the treatment of persons injured or taken ill upon the premises.

SECTION 2. Any person, firm or corporation violating this act shall be subject to a fine of not less than five dollars nor more than five hundred dollars for every week during which such violation continues.

RELATIVE TO THE MANUFACTURE OF CLOTHING IN TENEMENTS AND DWELLINGS, TO THE LABELLING OF TENEMENT-MADE CLOTHING, AND TO THE INSPECTION OF CLOTHING MADE IN IMPROPER PLACES OR UNDER UNHEALTHY CONDITIONS.

Revised Laws, Chapter 106, Sections 56-61.

(*Persons working on clothing in tenements and dwellings shall be licensed; the rooms in which such work is done shall be kept clean; and employers of such licensees shall submit a copy of a register of the names and addresses of said licensees to the State Board of Health every month.*)

SECTION 56.¹ A room or apartment in a tenement or dwelling house shall not be used for the purpose of making, altering, repairing or finishing therein coats, vests, trousers or wearing apparel of any description, except by the members of the family dwelling therein; and a family which desires to make, alter, repair or finish coats, vests, trousers or wearing apparel of any description in a room or apartment in a tenement or dwelling house shall first procure a license therefor from a state inspector of health, which shall be approved by the state board of health. A license may be applied for by, and issued to, any member of a family which desires to do such work. No person, partnership or corporation shall hire, employ or contract with a member of a family which does not hold a license therefor to make, alter, repair or finish garments or articles of wearing apparel as aforesaid, in any room or apartment in a tenement or dwelling house as aforesaid. Every room or apartment in which garments or articles of wearing apparel are made, altered, repaired or finished shall be kept in a cleanly condition and shall be subject to the inspection and examination of the state inspectors of health for the purpose of ascertaining whether said room or apartment or said garments or articles of wearing apparel or any parts thereof are clean and free from vermin and from infectious or contagious matter. A room or apartment in a tenement or dwelling house which is not used for living or sleeping purposes and which is not connected with a room or apartment used for living or sleeping purposes and which has a separate and distinct entrance from the outside shall not be subject to the provisions of this section, nor shall the provisions of this section prevent the employment of a tailor or seamstress by any person or family for the making of wearing apparel for the use of such person or family. Every person, firm or corporation hiring, employing or contracting with a member of a family holding a license under this section for the making, altering, repairing or finishing of garments or wearing apparel to be done outside the premises of such person, firm or corporation, shall keep a register of the names and addresses plainly written in English of the persons so hired, employed or contracted with, and shall forward a copy of such register once a month to the state board of health.

¹ Amended by chapter 238, Acts of 1905.

(Evidence of the existence of vermin or contagious disease where clothing is made shall be reported.)

SECTION 57. If said inspector finds evidence of infectious or contagious disease or of vermin present in a workshop or in a room or apartment in a tenement or dwelling house in which garments or articles of wearing apparel are made, altered or repaired, or in goods manufactured or in process of manufacture therein, he shall report the same to the state board of health, who shall then notify the local board of health to examine said workshop, room or apartment and the materials used therein; and if the board of health finds that said workshop or tenement or dwelling house is in an unhealthy condition and that the clothing and materials used therein are unfit for use, it shall issue such orders as the public safety may require.

(Clothing made in tenements and dwellings by unlicensed persons shall not be sold unless marked "tenement-made.")

SECTION 58. Whoever sells or exposes for sale coats, vests, trousers or wearing apparel of any description which have been made in a tenement or dwelling house in which the family dwelling therein has not procured a license, as required by section fifty-six, shall have affixed to each of said garments a tag or label not less than two inches in length and one inch in width, upon which shall be legibly printed or written the words "tenement made" and the name of the state and the city or town in which the garment was made.

SECTION 59. No person shall sell or expose for sale any of said garments without a tag or label as aforesaid affixed thereto, nor wilfully remove, alter or destroy such tag or label upon any of said garments when exposed for sale, nor sell or expose for sale any of said garments with a false or fraudulent label affixed thereto.

(Clothing made under unhealthy conditions and shipped into this Commonwealth shall be inspected.)

SECTION 60. If it is reported to said inspector or to the state board of health that ready-made coats, vests, trousers, overcoats or other garments are being shipped to this commonwealth, having been manufactured under unhealthy conditions, said inspector shall examine said goods and the condition of their manufacture, and if they are found to contain vermin or to have been made in improper places or under unhealthy conditions, he shall so report to the state board of health, which shall thereupon make such orders as the public safety may require.

(Penalty for violation of the five preceding sections.)

SECTION 61. Whoever violates any of the provisions of the five preceding sections shall be punished by a fine of not less than fifty nor more than five hundred dollars.

RELATIVE TO THE ENFORCEMENT OF THE LAWS CONCERNING THE EMPLOYMENT OF WOMEN, MINORS AND CHILDREN, THE VENTILATION AND SANITATION OF FACTORIES AND WORKSHOPS, AND THE MANUFACTURE OF CLOTHING IN UNSANITARY PLACES.

Revised Laws, Chapter 108, Section 8.

SECTION 8. The state inspectors of health shall, except as otherwise provided in chapters one hundred and four, one hundred and five and one hundred and six, enforce the provisions thereof and all other provisions of law relative to the employment of women and minors in manufacturing, mechanical and mercantile establishments, the employment of children, young persons or women in factories or workshops, the ventilation of factories or workshops and the securing of proper sanitary provisions therein, and the making of clothing in unsanitary conditions. For such purposes, said inspectors may enter all buildings and parts thereof which are subject to the provisions of said chapters and examine the methods of protection from accident, the means of escape from fire, the sanitary provisions and the means of ventilation, and may make investigations as to the employment of children, young persons and women.

NEW YORK'S NEW COCAINE LAW.

LAWS OF 1907, CHAPTER 424.

AN ACT TO AMEND THE PENAL CODE, IN RELATION TO THE SALE OF CERTAIN DRUGS.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. The penal code is hereby amended by inserting therein a new section to be section four hundred and five-a thereof and to read as follows:

§ 405-a. It shall be unlawful for any person to sell, furnish or dispose of alkaloid cocaine or its salts, or alpha or beta eucaine or their salts or any admixture of cocaine or eucaine, except upon the written prescription of a duly registered physician, which prescription shall be retained by the person who dispenses the same, shall be filled but once and of which no copy shall be taken by any person; except, however, that such alkaloid cocaine or its salts, and alpha or beta eucaine or their salts may lawfully be sold at wholesale upon the written order of a licensed pharmacist or licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist provided that the wholesale dealer shall affix or cause to be affixed to the bottle, box, vessel or package containing the article sold, and upon the outside wrapper of the package as originally put up, a label distinctly displaying the name and quantity of cocaine or its salts, alpha or beta eucaine or their salts, sold,

and the word "poison" with the name and place of business of the seller, all printed in red ink; and provided also that the wholesale dealer shall before delivering any of the articles make or cause to be made in a book kept for the purpose an entry of the sale thereof stating the date of sale, the quantity, name and form in which sold, the name and address of the purchaser, and the name of the person by whom the entry is made; and the said book shall be always open for inspection by the proper authorities and shall be preserved for at least five years after the date of the last entry made therein. Any person who violates any of the provisions of this section shall be guilty of a felony punishable by imprisonment of not more than one year or a fine of not more than one thousand dollars, or both.

§ 2. This act shall take effect September first, nineteen hundred and seven.

DEATHS FROM PATENT MEDICINES.

The following cases are taken from the columns of the "Journal of the American Medical Association," Vol. XLVIII., No. 20, May 18, 1907:—

DEATH FROM TAYLOR'S ANTI-HEADACHE POWDERS.

Drs. M. J. Sanford and D. V. Van Wagman of Suffern, N. Y., writing independently of each other, report the following case of poisoning from headache powders:—

C. M., male, aged seven years, awoke in the morning complaining of headache. His mother gave him some Epsom salts and a cup of coffee. As he was no better at 9 o'clock she gave him one of "Taylor's Anti-Headache Powders." The boy was given another powder at 10:15 and another at 11 o'clock. Soon after taking the third powder the child complained of faintness and lay down. At 11:45 his lips and tongue became very blue: his face was yellowish and his eyes staring — protruding — and unseeing. He was put on a lounge and apparently went to sleep, as he snored. At 12:15 he commenced to jerk, twitch and scream. The convulsive movements became worse, especially of the right side, and the boy died shortly before 1 o'clock, ten minutes before a physician arrived.

On the box containing the powders and on the circular accompanying it the following is printed:—

Taylor's Anti-Headache Powders. Guaranteed absolutely harmless. Contain no opium, chloral, cocaine, antipyrine, morphine, phenacetine, bromide or other injurious substance.

Never known to fail in curing bilious, sick or nervous headache and neuralgia in a few minutes.

Directions. — Take one powder dry on the tongue and drink a little water. Repeat if not entirely relieved in twenty minutes.

None genuine unless signed W. Scott Taylor.

The Taylor Drug and Chemical Co., Manufacturing Chemists — Laboratory — Trenton, N. J.

Dr. Van Wagman sent us a box of the powders; examination indicates that they contain, as active constituents, acetanilid, approximately 30 per cent.,

and caffein, approximately 2.5 per cent. Each powder of the specimen submitted weighs approximately 15 grains, and, therefore, contains about $4\frac{1}{2}$ grains of acetanilid.

THE SLAUGHTER OF THE INNOCENTS CONTINUES.

Dr. S. D. Barnes, Seattle, Wash., sends us an account of the death of twin babies, which, he says, occurred from an overdose of Mrs. Winslow's Soothing Syrup.

On March 31 the children were found dead in the perambulator in which they had been put to sleep. Deputy Coroner Wiltsie and Police Sergeant Bannick investigated the affair. At first they believed that the children had been smothered, but later were informed that they had been given a dose of soothing syrup before being put to bed the night before. The stomach contents were analyzed, and the report of the analysts stated that small quantities of opium were found. The coroner decided that an inquest was unnecessary and signed the death certificate, giving accidental poisoning as the cause of death. In commenting on this case, the Seattle "Sunday Times" states that indiscriminate use of sleeping potions for infants in many cases leads to child murder, unintentional, it is true, but none the less murder. The "Times" also deplores the fact that in Washington there is no law regulating the sale of these deadly "patent medicines."



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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING JULY 6, 1907.

CITIES AND TOWNS.	Population, ¹ estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Diseases.	Acute Lung Diseases.	Pthisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	160	43	39	12	19	3	3	3
Worcester,	132,240	36	4	6	2	3	—	—	—
Fall River,	106,123	28	16	9	5	1	1	1	1
Cambridge,	99,745	19	5	—	1	—	—	—	—
Lowell,	96,380	25	8	4	4	3	—	—	—
Lynn,	80,743	21	6	3	—	2	—	—	—
New Bedford,	79,744	20	12	6	1	2	1	—	—
Springfield,	78,707	19	4	3	3	2	1	—	—
Lawrence,	76,000	16	9	6	1	1	—	—	—
Somerville,	72,581	13	7	3	1	2	1	—	—
Holyoke,	51,730	14	5	5	1	3	—	—	—
Brockton,	51,289	15	3	3	1	2	—	—	—
Malden,	39,941	4	1	2	1	1	—	—	—
Chelsea,	38,659	11	2	1	—	1	—	—	—
Salem,	38,316	11	1	2	—	1	—	1	—
Newton,	38,209	6	3	—	—	—	—	—	—
Haverhill,	38,095	10	1	3	1	2	—	—	—
Fitchburg,	33,636	7	—	1	—	1	—	—	—
Everett,	31,274	6	1	2	—	1	1	1	—
Taunton,	30,967	11	3	—	1	—	—	—	—
Quincy,	29,944	11	1	3	—	3	—	—	—
Waltham,	27,493	7	1	1	—	1	—	—	—
Pittsfield,	26,425	6	—	—	—	—	—	—	—
Gloucester,	26,011	5	1	1	—	1	—	—	—
Brookline,	25,003	6	—	1	—	—	—	1	—
North Adams,	22,150	7	1	—	1	—	—	—	—
Chicopee,	20,615	10	6	2	3	—	—	—	—
Northampton,	20,508	6	0	—	—	—	—	—	—
Medford,	20,294	4	—	1	—	1	—	—	—
Beverly,	15,794	3	2	—	—	—	—	—	—
Leominster,	15,139	0	—	—	—	—	—	—	—
Hyde Park,	15,050	3	1	1	—	1	—	—	—
Melrose,	14,867	3	0	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	3	—	—	—	1	—	—	—
Marlborough,	14,263	—	—	—	—	—	—	—	—
Westfield,	14,169	3	2	1	—	—	—	1	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	2	—	—	—	—	—	—	—
Attleborough,	13,294	3	0	—	—	—	—	—	—
Clinton,	13,105	8	5	—	—	—	—	—	—
Adams,	13,072	2	1	1	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	2	1	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	3	0	—	—	—	—	—	—
Framingham,	11,648	2	—	1	1	—	—	—	—
Southbridge,	11,416	3	1	1	—	—	1	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,231,933	554	157		112	41	55	10	4	4
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING JULY 13, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	184	58	36	15	15	5	3	3
Worcester,	132,240	35	11	6	3	2	1	1	—
Fall River,	106,123	31	17	12	2	2	—	—	—
Cambridge,	99,745	16	4	—	—	—	—	—	—
Lowell,	96,380	28	12	5	1	—	—	—	—
Lynn,	80,743	19	6	3	—	1	—	—	—
New Bedford,	79,744	23	3	10	—	4	—	—	—
Springfield,	78,707	13	4	3	—	1	—	—	—
Lawrence,	76,000	20	9	4	2	1	—	—	—
Somerville,	72,581	20	3	1	—	2	—	—	—
Holyoke,	51,730	25	9	6	2	2	—	—	—
Brockton,	51,289	7	1	1	1	1	—	—	—
Malden,	39,941	10	1	1	—	1	—	—	—
Chelsea,	38,659	5	2	—	—	—	—	—	—
Salem,	38,316	6	1	2	—	2	—	—	—
Newton,	38,209	6	1	1	—	1	—	—	—
Haverhill,	38,095	8	1	1	1	—	—	—	—
Fitchburg,	33,636	8	3	1	—	1	—	—	—
Everett,	31,274	5	1	2	—	1	1	—	—
Taunton,	30,967	5	1	1	—	1	—	—	—
Quincy,	29,944	6	3	1	—	—	—	1	—
Waltham,	27,493	7	1	—	—	—	—	—	—
Pittsfield,	26,425	7	4	2	—	—	—	—	—
Gloucester,	26,011	9	—	1	1	1	—	—	—
Brookline,	25,003	4	—	—	—	—	—	—	—
North Adams,	22,150	4	1	1	—	—	1	—	—
Chicopee,	20,615	6	4	2	—	—	—	—	—
Northampton,	20,508	6	0	—	—	—	—	—	—
Medford,	20,294	2	—	—	—	—	—	—	—
Beverly,	15,794	2	—	—	—	—	—	—	—
Leominster,	15,139	3	—	—	—	—	—	—	—
Hyde Park,	15,050	1	—	—	—	—	—	—	—
Melrose,	14,867	6	2	2	—	—	2	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	6	4	4	1	3	—	—	—
Marlborough,	14,263	2	0	1	1	1	—	—	—
Westfield,	14,169	5	1	2	—	1	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	4	2	—	—	—	—	—	—
Attleborough,	13,294	5	0	—	—	—	—	—	—
Clinton,	13,105	1	0	—	—	—	—	—	—
Adams,	13,072	—	—	—	—	—	—	—	—
Gardner,	12,528	3	—	1	—	1	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	1	0	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	—	—	—	—	—	—	—	—
Framingham,	11,648	4	1	—	—	1	—	—	—
Southbridge,	11,416	3	2	2	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,233,961	571	173	115	31	46	7	4	5
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WEEK ENDING JULY 20, 1907.

CITIES AND TOWNS.	Population estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fections Dis- eases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	158	39	35	14	18	2	2	1
Worcester,	132,240	52	15	15	2	6	2	—	—
Fall River,	106,123	56	39	32	2	3	1	—	—
Cambridge,	99,745	15	4	4	1	2	—	—	—
Lowell,	96,380	41	21	13	2	4	—	1	—
Lynn,	80,743	20	5	3	—	2	—	—	—
New Bedford,	79,744	30	15	9	—	2	—	—	—
Springfield,	78,707	20	7	5	—	1	—	2	1
Lawrence,	76,000	25	12	12	1	4	—	—	—
Somerville,	72,581	10	2	2	—	1	—	—	—
Holyoke,	51,730	25	13	10	1	—	—	—	—
Brockton,	51,289	12	2	1	—	1	—	—	—
Malden,	39,941	3	—	—	—	—	—	—	—
Chelsea,	38,659	15	1	—	—	—	—	—	—
Salem,	38,316	9	3	2	—	1	—	—	1
Newton,	38,209	9	6	1	—	—	—	—	—
Haverhill,	38,095	9	1	—	—	—	—	—	—
Fitchburg,	33,636	—	—	—	—	—	—	—	—
Everett,	31,274	6	1	2	—	2	—	—	—
Taunton,	30,967	18	6	1	2	1	—	—	—
Quincy,	29,944	4	1	—	—	—	—	—	—
Waltham,	27,493	5	—	1	1	1	—	—	—
Pittsfield,	26,425	8	3	2	—	—	—	—	—
Gloucester,	26,011	7	2	—	1	—	—	—	—
Brookline,	25,003	3	—	—	—	—	—	—	—
North Adams,	22,150	6	1	1	—	—	—	—	—
Chicopee,	20,615	14	11	6	1	2	—	—	—
Northampton,	20,508	10	1	2	1	2	—	—	—
Medford,	20,294	5	—	—	—	—	—	—	—
Beverly,	15,794	3	—	—	—	—	—	—	—
Leominster,	15,139	—	—	—	—	—	—	—	—
Hyde Park,	15,050	3	0	—	—	—	—	—	—
Melrose,	14,867	3	0	1	—	1	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	6	—	2	—	—	—	—	—
Marlborough,	14,263	2	1	—	—	—	—	—	—
Westfield,	14,169	3	—	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	3	2	—	—	1	—	—	—
Attleborough,	13,294	2	1	1	—	—	—	—	—
Clinton,	13,105	6	1	—	—	—	—	—	—
Adams,	13,072	—	—	—	—	—	—	—	—
Gardner,	12,528	3	1	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	4	0	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	4	0	—	—	—	—	—	—
Framingham,	11,648	2	—	—	—	—	—	—	—
Southbridge,	11,416	5	2	—	—	1	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,196,877	644	219	163	31	55	5	6	2
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WEEK ENDING JULY 27, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Pneum.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	173	57	35	15	18	2	1	1
Worcester,	132,240	36	10	7	1	-	-	1	1
Fall River,	106,123	75	53	47	1	3	-	-	-
Cambridge,	99,745	20	6	2	1	1	-	-	-
Lowell,	96,380	64	32	18	3	5	-	-	-
Lynn,	80,743	16	3	3	-	2	-	-	-
New Bedford,	79,744	38	19	15	1	1	-	1	1
Springfield,	78,707	19	7	6	2	2	-	-	-
Lawrence,	76,000	26	15	14	2	2	-	-	-
Somerville,	72,581	19	3	2	-	-	-	-	-
Holyoke,	51,730	16	11	9	1	1	-	-	1
Brockton,	51,289	11	3	-	2	-	-	-	-
Malden,	39,941	8	2	1	-	1	-	-	-
Chelsea,	38,659	16	6	2	-	-	1	-	-
Salem,	38,316	9	2	3	-	2	1	-	-
Newton,	38,209	8	2	-	-	-	-	-	-
Haverhill,	38,095	13	1	4	1	3	-	-	-
Fitchburg,	33,636	-	-	-	-	-	-	-	-
Everett,	31,274	6	2	2	-	1	-	-	-
Taunton,	30,967	-	-	-	-	-	-	-	-
Quincy,	29,944	6	1	1	-	-	-	-	-
Waltham,	27,493	6	1	1	1	1	-	-	-
Pittsfield,	26,425	-	-	-	-	-	-	-	-
Gloucester,	26,011	5	-	-	-	-	-	-	-
Brookline,	25,003	1	-	-	-	-	-	-	-
North Adams,	22,150	6	2	2	-	-	-	-	-
Chicopee,	20,615	15	11	5	-	-	-	-	-
Northampton,	20,508	7	1	1	-	-	-	-	-
Medford,	20,294	3	-	1	-	1	-	-	-
Beverly,	15,794	3	-	-	-	1	-	-	-
Leominster,	15,139	-	-	-	-	-	-	-	-
Hyde Park,	15,050	1	1	-	-	-	-	-	-
Melrose,	14,867	1	0	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	3	2	-	-	-	-	-	-
Marlborough,	14,263	2	0	-	-	-	-	-	-
Westfield,	14,169	4	2	1	-	-	1	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	9	1	1	-	-	-	-	-
Attleborough,	13,294	4	2	2	-	-	-	-	-
Clinton,	13,105	4	2	1	-	-	-	-	-
Adams,	13,072	4	3	3	-	1	-	-	-
Gardner,	12,528	1	1	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	2	1	-	-	1	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	2	0	1	-	1	-	-	-
Framingham,	11,648	-	-	-	-	-	-	-	-
Southbridge,	11,416	1	1	-	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,140,909	663	266	190	32	49	4	7	6
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF JULY 6, 13, 20 AND 27, 1907.

DISEASE.	Place.	WEEK ENDING—			
		July 6.	July 13.	July 20.	July 27.
Cerebro-spinal meningitis, .	Attleborough, . . .	—	—	—	1
	Boston, . . .	1	2	4	3
	Brockton, . . .	1	—	—	—
	Haverhill, . . .	—	—	—	1
	Lowell, . . .	—	—	1	1
	New Bedford, . . .	—	2	—	—
	Quincy, . . .	—	—	—	1
	Revere, . . .	—	—	—	1
	Springfield, . . .	—	—	1	—
	Worcester, . . .	2	1	3	2
Erysipelas,	Boston,	1	—	—	—
	Chicopee,	1	—	—	—
	Haverhill,	1	—	—	—
	New Bedford,	—	—	—	1
	Westfield,	—	1	—	—
	Worcester,	—	1	—	—
Scarlet fever,	Boston,	3	3	—	1
	Chelsea,	—	—	—	1
	Chicopee,	—	1	—	1
	Holyoke,	—	1	2	1
	Haverhill,	—	1	—	—
	Lynn,	1	2	1	—
	Newton,	—	—	1	—
	Woburn,	—	1	1	—
	Worcester,	—	1	1	—
Whooping cough,	Boston,	—	1	1	—
	Clinton,	—	—	—	1
	Fall River,	—	1	—	—
	Lawrence,	1	—	—	—
	Malden,	1	—	—	—

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF JULY
6, 13, 20 AND 27, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	July 6.	July 13.	July 20.	July 27.
Diphtheria,	131	116	115	120
Measles,	108	104	79	106
Scarlet fever,	91	87	77	62
Typhoid fever,	26	28	37	36
Tuberculosis,	77	84	95	71
Cerebro-spinal meningitis,	1	6	5	5
Erysipelas,	—	1	—	—
Whooping cough,	1	—	—	—
Chicken pox,	1	—	—	—
Smallpox,	—	1	1	—
Leprosy,	—	—	—	1
Rabies,	—	—	—	1

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of July, 1907: —

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Baking powder,	3	—	3	Maple sugar,	1	—	1
Butter,	1	—	1	Meat products: —			
Cider,	1	—	1	Canned meats,	1	1	2
Clams,	1	—	1	Hamburg steak,	2	—	2
Cocoa,	—	1	1	Mince meat,	1	—	1
Condensed milk,	4	1	5	Sausages,	10	—	10
Cream,	8	—	8	Milk,	179	40	219
Cream of tartar,	2	—	2	Non-alcoholic drinks,	4	—	4
Drugs,	49	8	57	Pickles,	31	8	39
Flavoring extracts: —				Salad dressing,	3	—	3
Lemon,	1	—	1	Spices,	14	2	16
Vanilla,	4	—	4	Syrups,	2	—	2
Grape juice,	3	1	4	Table sauce,	—	1	1
Jams and jellies,	6	—	6	Vinegar,	3	—	3
Malt liquors: —				Wine,	1	—	1
Ale,	2	—	2	Total,	339	63	402
Porter,	2	—	2				

The samples of drugs found to be adulterated were: spiritus camphoræ, tincture iodi and several proprietary preparations.

The cities and towns in which samples were collected were: Attleborough, Beverly, Boston, Braintree, Brookline, Cambridge, Chelsea, Duxbury, Gloucester, Lawrence, Lowell, Lynn, Marblehead, Newburyport, Newton, North Adams, Plymouth, Salem, Somerville, Springfield, Swampscott, Taunton, Waltham, Wayland, Williamstown and Worcester.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Twenty-one convictions were secured during the month of July, 1907, for selling adulterated food and drugs and cocaine preparations, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Berry Selving,	Somerville, . . .	Fluid extract ginger.
2	Nicholas Berlo,	South Boston, . .	Frankfort sausages.
3	Wm. R. D. Neal,	Roxbury, . . .	Maltine with coca wine.
4	Samuel Davidson,	East Boston, . .	Vin Mariani.
5	Adelbert E. Batchelder,	Woburn, . . .	Milk (total solids, 10.18).
6	Mitchell J. Brouillette,	Taunton, . . .	Milk (total solids, 13.48). ¹
7	Malachi Craven,	Amesbury, . . .	Milk (total solids, 11.47).
8	James E. Fleet,	Marblehead, . .	Milk (total solids, 11.30).
9	Jacob H. Houghton,	Amesbury, . . .	Milk (total solids, 10.51).
10	Nelson Marlow,	North Adams, . .	Milk. ²
11	Bernard J. Morlock,	Taunton, . . .	Milk (total solids, 13.47). ¹
12	John C. Moynihan,	Newburyport, . .	Milk (total solids, 10.26). ²
13	John C. Moynihan,	Newburyport, . .	Milk (total solids, 11.43). ³
14	Edward W. Page,	Amesbury, . . .	Milk (total solids, 11.53).
15	Edwin S. Poore,	West Newbury, . .	Milk (total solids, 10.87). ³
16	Benj. F. Stacy,	Marblehead, . .	Milk (total solids, 10.86).
17	John Tremby,	Fall River, . . .	Milk (total solids, 10.90).
18	Winthrop Brown,	Marblehead, . .	Sweet pickles.
19	Patrick W. Donlan,	Newburyport, . .	Sweet pickles.
20	John E. Witherspoon,	Boston, . . .	Sweet pickles.
21	John E. Witherspoon,	Boston, . . .	Sweet pickles.

¹Appealed.

²Contained formaldehyde.

³Watered.

Fines imposed, \$498.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR JULY, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
5931	" Eastern Breakfast Co- con."	Eastern Tea and Coffee Company, 109 Fulton street, Boston, Mass.	Admixture of corn starch.
5816	" Rex " devilled chicken,	Cudahy Canning Company, U. S. A.	Admixture of corn meal.
4612	" Clinton Brand " pic- kles.	Ahart & McGuire, New York, N. Y.	Contained alum.
9235 N	" Acme " pickles,	J. Weller Company, Cincinnati, O.	Contained alum.
5915	" Gold Medal " pickles.	Squire, Dinger Company, Chicago, Ill.	Preserved with benzoic acid.
9231 N	" North side " sweet pickles.	Northside Packing Company, Cincinnati, O.	
4638 M	Milk,	Herbert Andrews, Essex Mass., . . .	
4682 M	Milk,	{ Frank S. Leighton, Sterling, Mass., . . .	
4684 M	Milk,		Total solids 8.9% per cent.; contained added water.
4686 M	Milk,		Total solids 9.13 per cent.; contained added water.
4688 M	Milk,		Total solids 8.71 per cent.; contained added water.
4716 M	Milk,		Total solids 8.60 per cent.; contained added water.
4836 M	Milk,	{ Edwin S. Poore, West Newbury, Mass., . . .	Total solids 10.87 per cent.; contained added water.
4838 M	Milk,	{ John A. Porter, Woburn, Mass., . . .	Total solids 10.44 per cent.; contained added water.
5903	Milk,	{ William Gown, Revere, Mass., . . .	Total solids 10.39 per cent.; contained added water.
5910	Milk,	{ Walter M. Wellington, Revere, Mass., . . .	Total solids 9.76 per cent.; contained added water.
4750 M	Milk,		Total solids 10.60 per cent.; contained added water.
4752 M	Milk,		Total solids 10.20 per cent.; fat 1.40 per cent.; skinned milk.
4754 M	Milk,		Total solids 11.44 per cent.; fat 2.20 per cent.; skinned milk.
4756 M	Milk,		Total solids 11.43 per cent.; fat 2.00 per cent.; skinned milk.
4758 M	Milk,	James C. Bradway, Monson, Mass., . . .	Total solids 11.31 per cent.; fat 1.85 per cent.; skinned milk.
4760 M	Milk,		Total solids 11.19 per cent.; fat 1.90 per cent.; skinned milk.

5852	Milk,	.	.	.	.	.	.	Edward C. Poole, Rockport, Mass.,	$\left\{ \begin{array}{l} \text{Total solids 10.37 per cent.; colored with annatto,} \\ \text{and contained added water.} \end{array} \right.$
5853	Milk,	.	.	.	.	.	.	William Healey, Provincetown, Mass.,	$\left\{ \begin{array}{l} \text{Total solids 8.80 per cent.; colored with annatto,} \\ \text{and contained added water.} \end{array} \right.$
5887	Milk,	.	.	.	.	.	.	Ginter Grocery Company, Boston and Lowell, Mass.,	$\left\{ \begin{array}{l} \text{Total solids 13.22 per cent.; contained a boron pre-} \\ \text{servative.} \end{array} \right.$
5899	Spirit of camphor,	.	.	.	.	.	.	.	40 per cent. of U. S. P. strength.

INSPECTION OF DAIRIES.

During the month of July, 1907, 182 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Attleborough,	66	26	39.39	40	60.61
Avon,	18	9	50.00	9	50.00
North Attleborough,	20	6	30.00	14	70.00
Plainville,	16	10	62.50	6	37.50
Seekonk,	21	8	38.10	13	61.90
Sharon,	9	7	77.78	2	22.22
Somerville,	10	3	30.00	7	70.00
Stoughton,	22	11	50.00	11	50.00

Total number of dairies examined,	182
Number found to be free from objectionable conditions,	80
Number to which letters were sent,	102
Total number of conditions,	411
Percentage of dairies which passed inspection,	43.96

The names of the owners of the dairies found to be worthy of commendation follow:—

Attleborough.

Allen, G. W.	Cooper, Alvin.	Shepard, Joseph R.
Andersen, John A.	Cummings, Frank A.	Smith, William H.
Barney, Alban S.	Ferrant, Everett.	Stowell, C. H.
Briggs, Seth.	Fisher, John M.	Tingley (Mrs.), L. H.
Carnes, William L.	Kaufman, A.	Watkins, A. H.
Carpenter, Charles.	Parmenter, Frank.	Wendall, Olof O.
Clements, A. J.	Phillips, Charles.	Williams, Douglas.
Cobb (Mrs.), Josephine.	Richardson, Henry.	Wilmarth, E. A.
Collins, Charles E.	Sheffield, G. St. John.	

Avon.

Beale, Wallace.	Crane, O. B.	Littlefield, Fred E.
Butler, James W.	Emery, Oscar.	Lothrop, George.
Crane, Charles.	Hamilton, Lester.	McGonnigle, John.

North Attleborough.

Caldwell, H. P.	Johnson, O. W.	McCartney, Robert A.
Caldwell, W. H.	Lacours, Alvides.	Titus, H. J.

Plainville.

Bigelow, Francis D.
Bolton, Joshua.
Fisher, J. H.
Herring, F. E.

Moore, C. N.
Sargent, Harry.
Shepard, Frank.

Simmons, S.
Smith, Sylvester.
Stolworthy, George.

Seekonk.

Ainsworth, Albert S.
Brown, Joseph.
Dennis, W. R.

Gerald, George.
Medberry, T. H.
Perrin, William.

Ricker, G. E.
Seward, F.

Sharon.

Derg, Christian.
Goddard, Joseph.
Leary, George.

Leary, John.
Leary, Louis.

Martin, N. L.
Myrick, Henry A.

Somerville.

Hunt (Mrs.), Ellen J.

Sturtevant, L. J.

Sturtevant, R. M.

Stoughton.

Arrogast, Joseph.
Atherton, Frank.
Bird, Henry.
Feeley, Matthew.

Gay, Aaron.
Goldsmith, S. S.
Kidder, C. W.
McNamara, J. F.

Monk, Frank.
Thompson, C. W.
Town Farm.

DIVISION OF THE STATE INTO HEALTH DISTRICTS.

At a meeting of the State Board of Health, held on July 9, 1907, the Board, in accordance with the provisions of section 1 of chapter 537 of the Acts of 1907, divided the State into the following health districts:—

Health District No. 1.—Includes the counties of Barnstable, Dukes and Nantucket, and the town of Wareham.

Health District No. 2.—Includes the cities of Fall River and New Bedford, and the towns of Acushnet, Berkley, Dartmouth, Dighton, Fairhaven, Freetown, Marion, Mattapoisett, Rehoboth, Rochester, Seekonk, Somerset, Swansea, and Westport.

Health District No. 3.—Includes Plymouth County, exclusive of the towns of Marion, Mattapoisett, Rochester and Wareham, and, in addition, the towns of Cohasset and Weymouth.

Health District No. 4.—Includes the cities of Quincy and Taunton, and the towns of Attleborough, Avon, Bellingham, Blackstone, Braintree, Canton, Dedham, Easton, Foxborough, Franklin, Holbrook, Hyde Park, Mansfield, Milton, Norfolk, Norton, North Attleborough, Norwood, Plainville, Randolph, Raynham, Sharon, Stoughton, Walpole, Westwood and Wrentham.

Health District No. 5. — Includes Suffolk County.

Health District No. 6. — Includes the cities of Cambridge, Everett, Malden, Medford, Melrose and Somerville, and the towns of North Reading, Reading, Stonham and Wakefield.

Health District No. 7. — Includes the cities of Beverly, Gloucester, Lynn and Salem, and the towns of Danvers, Essex, Ipswich, Hamilton, Lynnfield, Manchester, Marblehead, Middleton, Nahant, Peabody, Rockport, Saugus, Swampscott, Topsfield and Wenham.

Health District No. 8. — Includes the cities of Haverhill, Lawrence and Newburyport, and the towns of Amesbury, Andover, Boxford, Georgetown, Groveland, Merrimac, Methuen, Newbury, North Andover, Rowley, Salisbury and West Newbury.

Health District No. 9. — Includes the cities of Lowell and Woburn, and the towns of Acton, Arlington, Ayer, Bedford, Billerica, Boxborough, Burlington, Carlisle, Chelmsford, Concord, Dracut, Dunstable, Groton, Harvard, Lexington, Lincoln, Littleton, Maynard, Pepperell, Shirley, Stow, Tewksbury, Townsend, Tyngsborough, Westford, Wilmington and Winchester.

Health District No. 10. — Includes the cities of Marlborough, Newton and Waltham, and the towns of Ashland, Belmont, Brookline, Dover, Framingham, Grafton, Holliston, Hopedale, Hopkinton, Hudson, Medfield, Medway, Mendon, Milford, Millis, Natick, Needham, Northborough, Sherborn, Shrewsbury, Southborough, Sudbury, Upton, Watertown, Wayland, Wellesley, Westborough and Weston.

Health District No. 11. — Includes the city of Worcester, and the towns of Auburn, Brookfield, Charlton, Douglas, Dudley, Leicester, Millbury, Northbridge, North Brookfield, Oxford, Southbridge, Spencer, Sturbridge, Sutton, Uxbridge, Warren, Webster and West Brookfield.

Health District No. 12. — Includes the city of Fitchburg, and the towns of Ashburnham, Ashby, Athol, Barre, Berlin, Bolton, Boylston, Clinton, Dana, Gardner, Hardwick, Holden, Hubbardston, Lancaster, Leominster, Lunenburg, New Braintree, Oakham, Paxton, Petersham, Phillipston, Princeton, Royalston, Rutland, Sterling, Templeton, Westminster, Winchendon and West Boylston.

Health District No. 13. — Includes all of Franklin County, and all of Hampshire County excepting the towns of Huntington, Middlefield and Worthington.

Health District No. 14. — Includes all of Hampden County, and, in addition, the towns of Huntington, Middlefield and Worthington.

Health District No. 15. — Includes all of Berkshire County.

APPOINTMENT OF STATE INSPECTORS OF HEALTH.

On the tenth day of July, 1907, the following were appointed by the Governor to be State inspectors of health:—

District No. 1.—Dr. Charles G. Morse, Wareham.

District No. 2.—Dr. Adam G. MacKnight, 355 North Main Street, Fall River.

District No. 3.—Dr. Wallace C. Keith, 237 North Main Street, Brockton.

District No. 4.—Dr. Elliott Washburn, 50 Broadway, Taunton.

District No. 5.—Dr. Harry Linenthal, 327 Blue Hill Avenue, Roxbury.

District No. 6.—Dr. Albert P. Norris, 728 Massachusetts Avenue, Cambridge.

District No. 7.—Dr. J. William Voss, 108 Cabot Street, Beverly.

District No. 8.—Dr. William Hall Coon, 70 Newbury Street, Lawrence.

District No. 9.—Dr. Charles E. Simpson, Lowell Hospital, Lowell.

District No. 10.—Dr. William W. Walcott, 32 West Central Street, Natick.

District No. 11.—Dr. Melvin G. Overlock, 91 Chandler Street, Worcester.

District No. 12.—Dr. Lewis Fish, 7 Highland Avenue, Fitchburg.

District No. 13.—Dr. Harvey T. Shores, 177 Elm Street, Northampton.

District No. 14.—Dr. Richard S. Benner, 10 Chestnut Street, Springfield.

District No. 15.—Dr. Lyman A. Jones, 170 Main Street, North Adams.

Under the rules, consideration was postponed until July 17, when the appointments were severally confirmed by the Council.

“COMMERCIAL” BACTERIOLOGICAL INSPECTION OF MILK.

For more than three years the Board of Health of the city of Boston has enforced a regulation requiring that milk sold in the city shall have a temperature not higher than 50° F., and shall contain not more than 500,000 bacteria per cubic centimeter. This regulation, adopted as a

result of the general demand of physicians and the more intelligent of the public for improved milk supply, has provoked much discussion concerning the value of sanitary milk inspection and the best methods of carrying it out. The establishment of the bacterial and temperature standards seemed at the outset to inflict particular hardship upon the small producer of milk, and caused some uneasiness among those engaged in its sale.

The results of the examinations by the Boston Board of Health during the first year in which the regulation was in force showed that about 28 per cent. of the samples examined did not conform to the bacterial requirement, while a much larger proportion of them revealed higher temperatures than are permitted. The succeeding years showed a marked improvement, however, indicating clearly that inspection of this sort is of great value in the improvement of the general supply.

In attempting to meet the new requirements squarely and in a practical way, even at considerable expense, one of the firms selling milk in the city began, in 1905, a system of what may be called the "commercial" bacteriological inspection, to distinguish it from that officially made by the Board of Health, and because of the fact that it has been carried on in a systematic manner, and not by making an occasional laboratory test of a few samples. On the results of the bacteriological examinations has depended to a considerable extent the policy of the firm in its dealings with its producers, as will later be shown.

This systematic inspection has now been carried on for more than two years, and a brief account of the plan and a statement of the results obtained may be of some interest, for the firm has made an earnest attempt to bring the milk to such a condition that it will more than satisfy the regulation, and thus secure for the Boston market, at least in part, a pure, safe and in every way satisfactory quality of milk.

The firm concerned is not a large one, as compared with the leading companies; it controls, approximately, 200 farms, situated in a district within 40 miles of Boston. The milk is brought from the farms to two central collecting stations, where it is appropriately handled and bottled; and thence it is shipped to the city, where it reaches the consumer within twenty-four hours of production.

At the outset, the services of a trained bacteriologist from one of the professional schools of Boston were secured, and he was given free rein to devise and conduct in his own way a systematic scheme of bacteriological inspection and control of the contributing farms. The plan which was entered upon tentatively became the established system of inspection. It includes veterinary inspection of the cattle, sanitary inspection of the farms, and examination of samples of milk collected

by a trained man as the product is brought to the central collecting stations. The samples are examined bacteriologically by the plate method, to determine the number of bacteria; and microscopically to determine the leucocytes and to detect pathogenic or suspicious types of bacteria. It includes, moreover, instruction of all those engaged in the production or handling of milk as to its nature, as to the rapidity of its decomposition through bacterial action, and concerning the possibility and danger of infection with the exciting causes of human disease.

In the farm-inspection work every farm is visited; the barn, milk house and appliances for the cooling of the milk are examined; and hints and advice are given, wherever possible or necessary, as to the best methods of securing the proper handling of milk. The reasons for the inspection work are explained carefully to the farmer, and his methods and appliances are criticised or approved, as occasion demands. In other words, an attempt has been made to carry out a thorough, intelligent, sympathetic but rigid inspection and supervision of the farms. The information thus derived from this source supplements that obtained by direct examination of the milk itself.

For the veterinary inspection, a trained man, a graduate of the Harvard Veterinary School, is employed, who makes frequent examinations of the cattle, looking for evidence of tuberculosis or other diseases, and notes the condition of general cleanliness of the barns. Any criticism of conditions on the farms is made to the farmer directly by one of the inspectors, either the bacteriologist or the veterinarian, and not through the office of the firm, as it seems most desirable that no restriction shall be placed upon the work of the inspectors, and that they alone shall judge as to the character and desirability of retaining the individual farms on the list of contributing sources. This inspection of the farms and barns takes place frequently, and without warning to the farmer.

The bacteriological examination of the samples of milk from the different farms has been and is carried out according to the methods employed by the Boston Board of Health, so that the results of the "commercial" inspection and of the "official" city inspection are comparable. Milk from each of the farms has been examined, on an average, twice or three times each month, about 9,000 samples having been examined during the first two years of the work. The samples are collected by a bacteriologist as they are brought from the farm to the central stations, and the temperature of the milk is carefully noted. As soon as possible after collection, the samples, carefully iced, are taken to the laboratory and plated upon the standard culture media; and the numbers of bacteria per cubic centimeter of milk are ascertained after the proper period of incubation. As no regular order of collection is maintained.

there is no opportunity for a farmer to be especially careful on the day his milk is sampled, for his may be selected for examination on any day or on any number of successive days. The microscopical examination of the milk, in which process the standard method is employed, and the bacterial count, are performed at the same time.

An arbitrary method of grading the milk according to the number of bacteria was adopted early, and has been found very satisfactory for inspection purposes. Six grades of milk are recognized:—

Grade A, containing not more than 10,000 bacteria per cubic centimeter;

Grade B, ranging from 10,000 to 50,000 bacteria;

Grade C, ranging from 50,000 to 100,000;

Grade D, ranging from 100,000 to 250,000;

Grade E, ranging from 250,000 to 500,000;

Grade F, containing more than 500,000 bacteria, or milk which unmixed cannot legally be sold in Boston.

The percentages of the total number of samples examined for each month during the two years are graphically represented upon the accompanying chart. It will be noted especially that there has been a great falling off in the number of illegal samples, *i.e.*, those exceeding 500,000 bacteria per cubic centimeter; and a corresponding decided increase in the percentage of the samples of the higher grades, especially of A and B. It has been possible by this system of grading to separate the whole number of farms into groups, and to eliminate from the "bottle" milk that comes from the poorer farms. Any farmer who sends milk containing more than 500,000 bacteria per cubic centimeter at once receives a warning, in the form of a card sent directly by the inspector, a copy of which is reproduced below:—

Owing to the regulations of the board of health the company is liable to fine if it sells milk containing more than 500,000 bacteria per c.c. A large majority of the dairies are sending milk which meets this requirement.

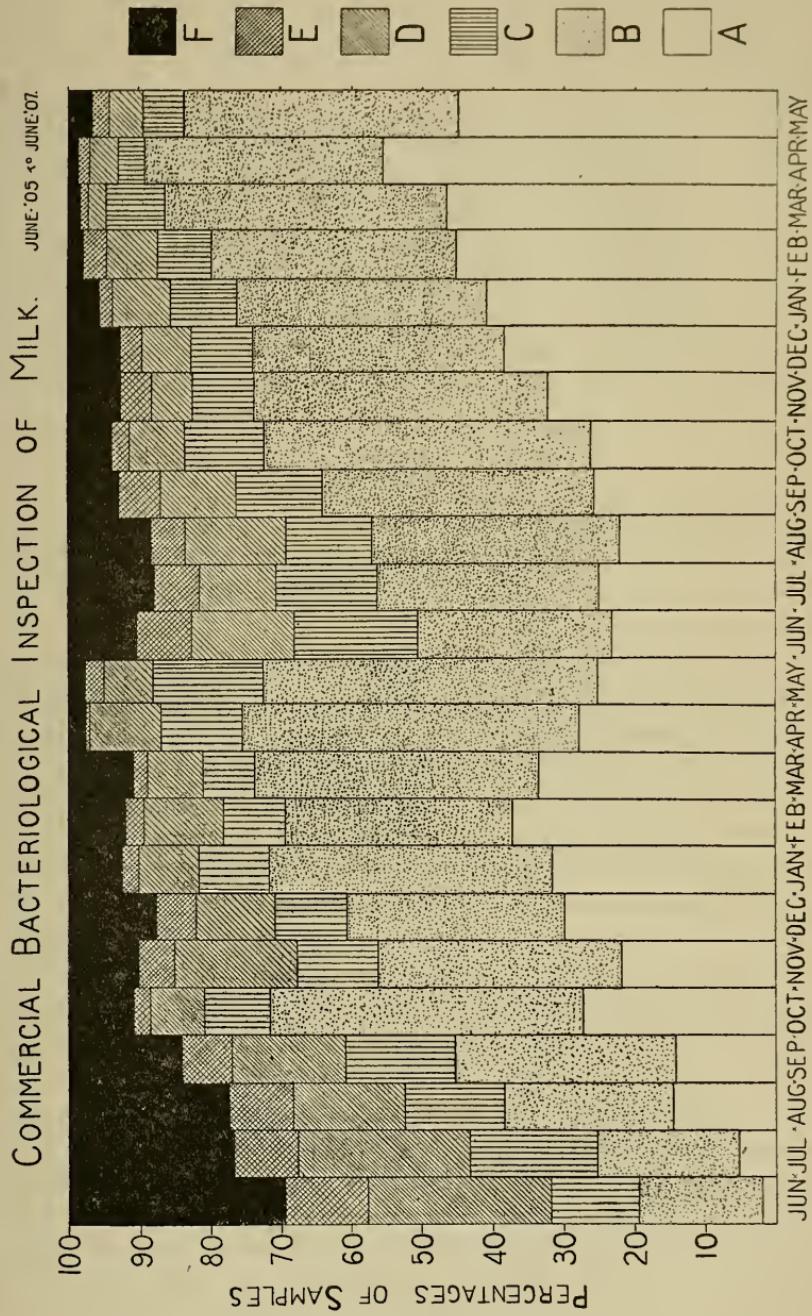
The temperature must be kept low if these results are to be attained.

Examination of milk from your farm on _____ showed bacteria to be _____ per c.c., and the temperature ____°.

The company will be forced to exclude milk from your farm unless improvement takes place at once.

Cleanliness and greater care in handling and cooling the milk will probably remove the difficulty.

Repeated offence in this direction, or failure to produce satisfactory milk after two or three warnings have been given, results in the exclu-



sion of the milk, regardless of the size of the herd or the facilities of the farm ; and during the time the work has been carried on, the milk of several farmers, among them the largest single producer, has thus been excluded.

The microscopical examination of the centrifugalized milk, carried out also in accordance with the method employed in the Boston board of health laboratory, gives a clue to probable infection of individual cows by dangerous types of micro-organisms. The occurrence of leucocytes in even large numbers has been interpreted differently by different observers. The occurrence of streptococci, on the other hand, has been generally accepted as indicating infection of some sort in the udder or teats of the cow. Whenever, therefore, streptococci in large numbers have been found, whether or not with large numbers of leucocytes, the result has been accepted as an indication of inflammatory processes, the dairy from which the milk was derived has been visited without delay, and samples of milk have been taken from each of the cows. In this way it has been found possible to locate without difficulty the exact source of infection, and the cows thus shown to be at fault have been quarantined until subsequent examination has shown them to have returned to normal condition.

During the quarantine period the milk from these cows is rejected, while that from all the other cows of the herd is sent in as usual, and the loss to the farmer is consequently small.

The company also has attempted to guard against infection of milk, and consequent possible danger to the consumers, in case of the occurrence of infectious disease on any of the farms. To do this, the co-operation of the physicians of the district and of the farmers themselves is secured as far as possible. As soon as illness is reported, the place is visited by the bacteriologist, and a thorough disinfection of the cow stable and milk house is insisted upon, disinfecting solution is supplied, and directions for carrying out disinfection are given. The milk from the farm is rejected, so that no danger results from admixture of this to other milk, and it is only on a notification of release by the bacteriologist that the milk is again received. In order to make as sure as possible that the farmer will notify the company in case of any illness on his premises, the plan has been adopted of paying for the milk during the quarantine period, the loss thus falling upon the firm, and not upon the producer. Thus protected from financial loss, the farmer is generally willing to notify the company at once. Furthermore, an arrangement is made with the physicians of the neighborhood to report immediately any case of communicable disease falling under their observation.

The same precautions have been observed not merely on the farms.

but also throughout the whole process of handling the milk until it reaches the consumer.

In addition to the inspection work, which already has been described, an attempt has been made to instruct the farmers and all others engaged in handling the milk; and to this end a booklet on clean milk, prepared by the bacteriologist, which describes the action of bacteria on milk and the chief methods of infection, has been distributed. The danger of contamination from dirty cows, dirty utensils, dirty barns and dirty human beings is emphasized; the effect of heat on the rate of growth of bacteria, and the inhibiting action of cold are described fully and simply, so that all may understand that extreme cleanliness and cold are the two chief factors in the production of a safe and satisfactory supply.

ADDITIONAL COCAINE PREPARATIONS ADVERTISED AS UNSALABLE.

The Miles Mixture for Catarrh, Miles Medicine Company, Boston.
Vin Tonique Mariani, Mariani, 41 Bd. Haussman (Paris).

MONTHLY BULLETIN



OF THE
STATE BOARD OF HEALTH
OF
MASSACHUSETTS.

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STATE BOARD OF HEALTH.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING AUG. 3, 1907.

CITIES AND TOWNS.	Population: ¹ , Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—					
				Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	224	68	79	13	25	3	2	1
Worcester,	132,240	36	10	11	—	4	—	1	—
Fall River,	106,123	57	49	41	4	1	1	1	—
Cambridge,	99,745	19	5	7	—	3	—	—	—
Lowell,	96,380	49	31	13	—	1	1	—	—
Lynn,	80,743	23	10	3	—	2	—	—	—
New Bedford,	79,744	36	27	22	—	1	1	—	—
Springfield,	78,707	35	16	15	1	4	—	—	—
Lawrence,	76,000	30	19	16	1	2	—	—	—
Somerville,	72,581	7	2	1	1	—	—	—	—
Holyoke,	51,730	19	16	9	—	—	—	—	—
Brockton,	51,289	17	6	2	—	—	—	—	—
Malden,	39,941	8	—	2	—	1	—	—	—
Chelsea,	38,659	24	12	2	1	—	1	—	1
Salem,	38,316	15	10	10	—	2	—	2	—
Newton,	38,209	13	3	2	—	1	1	—	—
Haverhill,	38,095	7	1	2	1	2	—	—	—
Fitchburg,	33,636	5	4	—	1	—	—	—	—
Everett,	31,274	3	3	—	—	—	—	—	—
Taunton,	30,967	18	9	7	—	1	—	—	—
Quincy,	29,944	7	2	4	—	1	1	—	—
Waltham,	27,493	7	1	1	—	—	—	—	—
Pittsfield,	26,425	6	1	1	1	—	—	—	—
Gloucester,	26,011	3	—	—	1	—	—	—	—
Brookline,	25,003	3	1	—	—	—	—	—	—
North Adams,	22,150	8	2	5	—	—	1	1	1
Chicopee,	20,615	16	11	6	2	1	—	—	—
Northampton,	20,508	6	1	—	—	—	—	—	—
Medford,	20,294	2	—	—	—	—	—	—	—
Beverly,	15,794	9	—	1	1	—	—	—	1
Leominster,	15,139	7	2	4	—	2	—	—	—
Hyde Park,	15,050	7	3	1	—	1	—	—	—
Melrose,	14,867	3	0	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	9	3	1	—	1	—	—	—
Marlborough,	14,263	4	1	—	—	—	—	—	—
Westfield,	14,169	3	—	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	3	—	—	—	—	—	—	—
Attleborough,	13,294	5	2	2	—	—	—	—	—
Clinton,	13,105	2	2	—	—	—	—	—	—
Adams,	13,072	—	—	—	—	—	—	—	—
Gardner,	12,528	4	3	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	4	1	—	1	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	—	—	—	—	—	—	—	—
Framingham,	11,648	2	1	—	—	—	—	—	—
Southbridge,	11,416	11	5	3	1	2	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,233,961	776	343	273	30	58	10	8	2
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING AUG. 10, 1907.

CITIES AND TOWNS.	Population. Esti- mated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- flections Dis- eases.	Acute Lung Diseases.	Pitthisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	222	80	72	14	14	5	-	3
Worcester,	132,240	56	29	22	5	1	2	-	-
Fall River,	106,123	76	55	48	4	4	-	-	-
Cambridge,	99,745	31	17	8	2	1	-	-	-
Lowell,	96,380	51	25	15	-	2	-	-	-
Lynn,	80,743	32	-	5	-	3	1	-	-
New Bedford,	79,744	48	34	30	1	1	-	-	-
Springfield,	78,707	32	15	10	-	1	1	-	1
Lawrence,	76,000	43	31	5	2	1	-	-	1
Somerville,	72,581	14	4	4	2	2	-	-	-
Holyoke,	51,730	22	11	8	1	2	-	-	-
Brockton,	51,289	7	2	1	-	-	-	-	-
Malden,	39,941	10	4	1	-	-	-	-	-
Chelsea,	38,659	23	9	3	-	1	-	-	-
Salem,	38,316	16	6	6	-	3	-	-	-
Newton,	38,209	6	3	-	-	-	-	-	-
Haverhill,	38,095	17	6	5	-	3	1	-	-
Fitchburg,	33,636	7	2	-	-	-	-	-	-
Everett,	31,274	3	3	-	-	-	-	-	-
Taunton,	30,967	-	-	-	-	-	-	-	-
Quincy,	29,944	7	5	3	-	-	-	-	-
Waltham,	27,493	10	2	4	1	2	-	-	-
Pittsfield,	26,425	5	2	4	-	1	-	-	1
Gloucester,	26,011	6	1	2	-	1	1	-	-
Brookline,	25,003	5	-	-	-	-	-	-	-
North Adams,	22,150	6	4	3	-	-	-	-	-
Chicopee,	20,615	11	8	6	2	1	-	-	-
Northampton,	20,508	6	1	-	-	-	-	-	-
Medford,	20,294	2	-	-	-	-	-	-	-
Beverly,	15,794	1	-	-	-	-	-	-	-
Leominster,	15,139	4	3	-	-	-	-	-	-
Hyde Park,	15,050	2	1	-	-	-	-	-	-
Melrose,	14,867	2	2	2	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	8	4	5	-	3	-	-	-
Marlborough,	14,263	4	0	-	-	-	-	-	-
Westfield,	14,163	3	1	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	3	2	-	-	-	-	-	-
Attleborough,	13,294	7	4	-	1	-	-	-	-
Clinton,	13,105	1	0	-	-	-	-	-	-
Adams,	13,072	4	4	2	-	-	-	-	-
Gardner,	12,528	1	1	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	2	1	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	4	0	-	-	-	-	-	-
Framingham,	11,648	4	2	-	-	-	-	-	-
Southbridge,	11,416	2	2	2	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns,	2,227,757	826	286	276	35	47	12	-	6
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WEEK ENDING AUG. 17, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	220	86	91	—	—	—	—	1
Worcester,	132,240	62	36	23	—	—	—	—	2
Fall River,	106,123	62	49	35	—	—	—	—	—
Cambridge,	99,745	34	16	16	—	—	—	—	—
Lowell,	96,380	50	20	23	—	—	—	—	—
Lynn,	80,743	26	12	9	—	—	—	—	—
New Bedford,	79,744	38	26	21	—	—	—	—	—
Springfield,	78,707	29	9	3	—	—	—	—	—
Lawrence,	76,000	54	35	9	—	—	—	—	—
Somerville,	72,581	19	7	6	—	—	—	—	—
Holyoke,	51,730	23	13	7	—	—	—	—	—
Brockton,	51,289	12	3	2	—	—	—	—	—
Malden,	39,941	13	7	5	—	—	—	—	—
Chelsea,	38,659	8	4	2	—	—	—	—	—
Salem,	38,316	15	9	3	—	—	—	—	—
Newton,	38,209	7	1	1	—	—	—	—	—
Haverhill,	38,095	14	3	3	—	—	—	—	—
Fitchburg,	33,636	19	7	3	—	—	—	—	—
Everett,	31,274	6	4	2	—	—	—	—	—
Taunton,	30,967	—	—	—	—	—	—	—	—
Quincy,	29,944	14	8	10	—	—	—	—	—
Waltham,	27,493	10	4	6	—	—	—	—	—
Pittsfield,	26,425	14	—	2	—	—	—	—	—
Gloucester,	26,011	5	1	2	—	—	—	—	—
Brookline,	25,003	5	1	1	—	—	—	—	—
North Adams,	22,150	6	1	3	—	—	—	—	—
Chicopee,	20,615	10	7	3	—	—	—	—	—
Northampton,	20,508	4	0	1	—	—	—	—	—
Medford,	20,294	6	2	2	—	—	—	—	—
Beverly,	15,794	10	5	3	—	—	—	—	—
Leominster,	15,139	4	1	1	—	—	—	—	—
Hyde Park,	15,050	2	—	1	—	—	—	—	—
Melrose,	14,867	0	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	2	—	—	—	—	—
Woburn,	14,462	3	2	—	—	—	—	—	—
Marlborough,	14,263	1	1	1	—	—	—	—	—
Westfield,	14,169	7	4	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	11	3	1	—	—	—	—	—
Attleborough,	13,294	8	3	2	—	—	—	—	—
Clinton,	13,105	1	0	—	—	—	—	—	—
Adams,	13,072	7	6	5	—	—	—	—	—
Gardner,	12,528	4	2	1	—	—	—	—	1
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	5	3	2	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	8	3	3	—	—	2	—	—
Framingham,	11,648	1	1	1	—	—	—	—	—
Southbridge,	11,416	4	3	2	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, .	2,227,757	861	408	315	28	63	9	4	2
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WEEK ENDING AUG. 24, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	243	100	80	19	28	1	2	1
Worcester,	132,240	43	16	14	—	4	—	—	—
Fall River,	106,123	60	42	46	1	2	1	1	—
Cambridge,	99,745	32	18	15	—	2	1	—	—
Lowell,	96,380	47	23	25	3	2	—	—	—
Lynn,	80,743	29	14	9	—	1	—	—	—
New Bedford,	79,744	30	17	12	2	3	—	—	—
Springfield,	78,707	25	8	4	—	1	—	—	1
Lawrence,	76,000	30	13	11	2	1	—	—	—
Somerville,	72,581	17	6	6	—	1	—	—	—
Holyoke,	51,730	26	16	8	2	—	4	—	—
Brockton,	51,289	16	5	4	1	—	—	1	—
Malden,	39,941	11	8	4	—	1	—	—	—
Chelsea,	38,659	8	4	2	—	1	1	—	—
Salem,	38,316	12	6	—	—	—	—	—	—
Newton,	38,209	11	4	1	—	1	—	—	—
Haverhill,	38,095	6	2	1	—	—	5	—	—
Fitchburg,	33,636	11	2	5	—	—	—	—	—
Everett,	31,274	14	10	5	—	—	1	—	—
Taunton,	30,967	13	5	8	1	1	—	—	—
Quincy,	29,944	14	9	7	1	1	1	—	—
Waltham,	27,493	5	1	—	—	—	—	—	—
Pittsfield,	26,425	16	—	7	2	3	—	—	—
Gloucester,	26,011	8	1	2	1	—	1	1	—
Brookline,	25,003	4	2	1	—	—	—	—	—
North Adams,	22,150	5	2	2	—	—	—	—	1
Chicopee,	20,615	9	6	1	2	—	—	—	—
Northampton,	20,508	4	2	2	1	—	1	—	—
Medford,	20,294	2	—	1	—	—	—	—	—
Beverly,	15,794	6	—	—	1	—	—	—	—
Leominster,	15,139	—	—	—	—	—	—	—	—
Hyde Park,	15,050	5	—	2	—	2	—	—	—
Melrose,	14,867	—	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	4	—	2	—	—	—	—	—
Marlborough,	14,263	12	1	1	—	—	—	—	—
Westfield,	14,169	7	5	1	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	7	3	—	—	—	—	—	—
Attleborough,	13,294	4	—	1	—	—	—	—	—
Clinton,	13,105	—	—	—	—	—	—	—	—
Adams,	13,072	9	5	7	—	1	—	1	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	1	1	1	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	—	—	—	—	—	—	—	—
Framingham,	11,648	6	4	1	—	1	—	—	—
Southbridge,	11,416	2	2	—	—	1	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,191,394	804	363	298	40	62	12	7	2
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WEEK ENDING AUG. 31, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—					
				Principal Infectious Diseases.	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	231	106	82	13	15	-	1	2
Worcester,	132,240	57	31	8	8	2	2	-	-
Fall River,	106,123	58	43	36	4	1	1	-	-
Cambridge,	99,745	27	14	5	1	2	-	-	-
Lowell,	96,380	39	18	14	2	6	-	-	-
Lynn,	80,743	25	8	6	-	1	-	1	-
New Bedford,	79,744	46	23	20	1	4	-	-	-
Springfield,	78,707	17	7	3	-	-	-	-	1
Lawrence,	76,000	32	19	18	3	3	1	-	-
Somerville,	72,581	15	7	3	2	1	-	-	-
Holyoke,	51,730	23	13	3	5	1	1	-	-
Brockton,	51,289	15	1	3	-	1	1	-	-
Malden,	39,941	10	6	4	-	-	-	-	-
Chelsea,	38,659	14	9	3	-	-	1	-	1
Salem,	38,316	9	6	1	-	-	-	-	-
Newton,	38,209	6	3	1	-	1	-	-	-
Haverhill,	38,095	12	5	6	1	1	-	2	-
Fitchburg,	33,636	-	-	-	-	-	-	-	-
Everett,	31,274	9	3	-	-	-	-	-	-
Taunton,	30,967	24	7	11	3	2	-	-	-
Quincy,	29,944	11	6	4	-	-	-	-	-
Waltham,	27,493	5	3	2	-	1	-	-	-
Pittsfield,	26,425	7	3	3	1	-	-	-	-
Gloucester,	26,011	10	4	1	-	-	-	-	-
Brookline,	25,003	4	1	-	-	-	-	-	-
North Adams,	22,150	11	5	2	-	-	-	-	-
Chicopee,	20,615	8	5	4	1	-	-	-	-
Northampton,	20,508	7	0	1	-	1	-	-	-
Medford,	20,294	4	2	2	-	1	-	-	-
Beverly,	15,794	3	1	-	-	-	-	-	-
Leominster,	15,139	7	1	1	-	1	-	-	-
Hyde Park,	15,050	2	2	-	-	-	-	-	-
Melrose,	14,867	3	1	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	7	7	5	-	-	-	-	-
Marlborough,	14,263	6	2	-	-	-	-	-	-
Westfield,	14,169	6	2	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	8	2	2	-	2	-	-	-
Attleborough,	13,294	6	4	1	-	-	-	-	-
Clinton,	13,105	-	-	-	-	-	-	-	-
Adams,	13,072	9	8	7	-	-	-	1	-
Gardner,	12,528	5	3	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	1	1	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	7	4	-	-	-	-	-	-
Framingham,	11,648	2	-	-	-	-	-	-	-
Southbridge,	11,416	10	5	3	1	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, .	2,211,983	818	401	265	46	48	7	5	4
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF AUG. 3, 10, 17, 24 AND 31,
1907.

DISEASE.	Place.	WEEK ENDING—				
		Aug. 3.	Aug. 10.	Aug. 17	Aug. 24.	Aug. 31.
Cerebro-spinal meningitis,	Boston, . . .	4	3	3	2	—
	Gloucester, . . .	—	—	—	—	1
	Haverhill, . . .	—	1	—	—	—
	Lawrence, . . .	—	—	1	—	—
	Lowell, . . .	—	1	—	1	1
	New Bedford, . . .	—	1	1	1	—
	Waltham, . . .	—	1	—	—	1
	Worcester, . . .	1	3	1	1	—
Erysipelas,	Boston, . . .	1	—	—	1	—
	Brookline, . . .	—	—	1	—	—
	Lowell, . . .	—	—	1	—	—
	Lynn, . . .	1	—	—	—	—
	Springfield, . . .	1	—	—	—	—
	Taunton, . . .	—	—	—	—	1
Scarlet fever,	Chicopee, . . .	—	—	1	1	1
	Fall River, . . .	—	—	—	1	—
	Holyoke, . . .	—	—	—	1	—
	Lawrence, . . .	—	—	1	—	—
	Lynn, . . .	—	1	1	—	—
	Quincy, . . .	—	—	1	—	—
	Somerville, . . .	—	—	1	1	—
Whooping cough,	Boston, . . .	5	1	1	2	1
	Brookline, . . .	—	—	—	1	—
	Fall River, . . .	—	1	—	1	—
	Lawrence, . . .	—	—	—	—	1
	Leominster, . . .	2	—	—	—	—
	Lowell, . . .	—	—	1	1	—
	North Adams, . . .	—	—	—	—	1
	Pittsfield, . . .	1	—	—	—	—
	Quincy, . . .	—	—	—	—	1
	Salem, . . .	—	—	—	—	1
	Southbridge, . . .	—	—	—	—	—
	Springfield, . . .	—	1	2	—	—
Malaria,	Woburn, . . .	—	—	—	—	1

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF AUG.
3, 10, 17, 24 AND 31, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —				
	Aug. 3.	Aug. 10.	Aug. 17.	Aug. 24	Aug. 31.
Diphtheria,	105	122	118	146	111
Measles,	69	63	45	32	47
Scarlet fever,	65	55	68	68	64
Typhoid fever,	35	40	55	66	83
Phthisis,	101	106	84	99	103
Cerebro-spinal meningitis,	2	4	4	5	—
Whooping cough,	—	9	—	—	9
Malaria,	—	—	—	1	—
Smallpox,	13	—	2	—	—
Leprosy,	—	—	—	—	1

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examinations of food and drugs made by the State Board of Health during the month of August, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Butter,	2	—	2	Meat products:—			
Canned soup,	—	1	1	Lambs' tongues,	2	—	2
Cider,	2	2	4	Sausages,	7	—	7
Cocoa,	3	—	3	Milk,	281	91	372
Cream,	4	—	4	Non-alcoholic			
Cream of tartar,	1	—	1	drinks,	3	—	3
Drugs,	55	22	77	Spices and condiments,	3	—	3
Flavoring extracts,	4	3	7				
Jams and jellies,	2	—	2	Syrups,	2	1	3
Malt liquors,	4	1	5	Wine,	1	3	4
Meat products:—				Total,	377	125	502
Corned beef,	1	—	1				
Extract of beef,	—	1	1				

The samples of drugs found to be adulterated were: fluid extractum zingiberis, linimentum camphoræ, spiritus camphoræ, tinctura iodi, tinctura zingiberis and several proprietary medicines.

The cities and towns in which samples were collected were: Amesbury, Bedford, Billerica, Boston, Braintree, Brookline, Cambridge, Chelsea, Concord, Danvers, Fall River, Framingham, Gloucester, Greenfield, Hull, Ipswich, Lawrence, Lowell, Lynn, Marlborough, Maynard, Methuen, Milford, Nantucket, New Bedford, Newton, North Adams, Oak Bluffs, Onset, Palmer, Provincetown, Randolph, Revere, Salem, Somerville, Watertown, Westborough and Worcester.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Twenty-five convictions were secured during the month of August, 1907, for selling adulterated food and drugs and cocaine preparations, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	William T. Corbett,	Boston,	Chili sauce.
2	Joseph Hoffman,	Boston,	Extract jamaica ginger.
3	John D. Barry,	Lynn,	Maltine with coca wine.
4	Simpson A. McConnell,	Concord,	Maltine with coca wine.
5	Constantine Vrahor,	Gloucester,	Maple sugar.
6	Herbert Andrews,	Gloucester,	Milk (total solids, 10.71). ^{1,2}
7	Herbert Andrews,	Gloucester,	Milk (total solids, 9.48). ^{1,2}
8	Herbert Andrews,	Gloucester,	Milk (total solids, 8.32). ^{1,2}
9	Charles Bolger,	Rockport,	Milk (total solids, 11.36).
10	James C. Bradway,	Palmer,	Milk (total solids, 10.20).
11	William W. Brown,	Gloucester,	Milk (total solids, 11.11).
12	William Dunn,	Revere,	Milk (total solids, 9.76).
13	William Dunn,	Revere,	Milk. ²
14	Frank S. Leighton,	Clinton,	Milk (total solids, 8.60). ²
15	William Mee,	Revere,	Milk (total solids, 11.56).
16	William T. Moore,	Concord,	Milk (total solids, 11.30).
17	Edward C. Pool,	Rockport,	Milk (total solids, 10.37). ²
18	Edward C Pool,	Rockport,	Milk. ^{1,3}
19	John A. Porter,	Woburn,	Milk (total solids, 10.39). ¹
20	Alden D. Wellington,	Wayland,	Milk (total solids, 11.02).
21	Marcellian Sirvian,	Boston,	Sausage meat.
22	Ervin V. Plummer,	Boston,	Sweet pickles.
23	Ervin V. Plummer,	Boston,	Sweet pickles
24	Martin J. Sherry,	Boston,	Sweet pickles.
25	John E. Witherspoon,	Salem,	Sweet pickles.

¹Appealed.

²Watered.

³Colored annatto.

Fines imposed, \$720.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR AUGUST, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.	
5497	"Unfermented Port Wine,"	{ Meux's Brewery Company, Ltd., London,		
5973	"Unfermented Blackberry Wine,"	{ Los Angeles Fruit Cider Company, Los Angeles, Cal.,		Solutions of inverted cane sugar and malic acid in water, artificially colored and flavored.
5974	"Unfermented Blood Orange Wine,"	{ Phillip J. Ritter Conserve Company, Philadelphia, Pa.,		
5975	Raspberry fruit syrup, "Meux's Original London Stout,"	{ Meux's Brewery Company, Ltd., London,		Preserved with benzoic acid.
4930 M	Extract of Vanilla,	{ L. S. B. Delaney Drug Company, Lawrence, Mass.,		Preserved with salicylic acid.
6004	Tomato soup, .	{ Van Camp Packing Company, Indianapolis, Ind.,		Large admixture of coumarin.
5937	Milk, .	{ Herbert Andrews, Essex, Mass.,		Preserved with benzoic acid.
4980 M	Milk, .	{ Marshall H. Gagne, Lawrence, Mass.,		Total solids, 9.48 per cent.; contained added water.
4982 M	Milk, .	{ Walter B. May, Worcester, Mass.,		Total solids, 8.32 per cent.; contained added water.
5986	Milk, .	{ Fred Tougas, Ipswich, Mass.,		Total solids, 10.17 per cent.; contained added water.
5038	Milk, .	{ Martin Maselbos, Ipswich, Mass.,		Total solids, 10.94 per cent.; contained added water.
6063	Milk, .			Total solids, 10.62 per cent.; contained added water.
6065	Milk, .			Total solids, 10.46 per cent.; contained added water.
5246 M	Milk, .			Total solids, 11.28 per cent.; contained added water.
5248 M	Milk, .			Total solids, 11.36 per cent.; contained added water.
5250 M	Milk, .			Total solids, 11.38 per cent.; contained added water.
5252 M	Milk, .			Total solids, 11.38 per cent.; contained added water.
5254 M	Milk, .			Total solids, 11.27 per cent.; contained added water.
5256 M	Milk, .			Total solids, 11.39 per cent.; contained added water.
5258 M	Milk, .			Total solids, 11.32 per cent.; contained added water.
5260 M	Milk, .			Total solids, 11.32 per cent.; contained added water.
5262 M	Milk, .			Total solids, 11.37 per cent.; contained added water.
5264 M	Milk, .			Total solids, 11.37 per cent.; contained added water.
5266 M	Milk, .			Total solids, 11.92 per cent.; contained added water.
5268 M	Milk, .			Total solids, 11.92 per cent.; contained added water.
6090	Milk, .			Total solids, 9.92 per cent.; contained added water.
6092	Milk, .			Total solids, 9.95 per cent.; contained added water.
6093	Milk, .			Total solids, 10.55 per cent.; contained added water.
6098	Milk, .			Total solids, 9.85 per cent.; contained added water.
6100	Milk, .			Total solids, 5.67 per cent.; contained added water.
6103	Milk, .			Total solids, 10.84 per cent.; contained added water.
6104	Milk, .			Total solids, 10.86 per cent.; contained added water.
6105	Milk, .			Total solids, 10.20 per cent.; contained added water.
Charles V. Swanton, Salem Depot, N. H., .				

LIST OF ADULTERATED FOODS, ETC.—Concluded.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
5206 M	Milk,	John W. Merrill, Danvers, Mass.,	Total solids, 12.20 per cent.; preserved with formaldehyde.
6054	Milk,	Wm. C. Wallace, Ipswich, Mass.,	Total solids, 10.72 per cent.; preserved with formaldehyde.
9375 N	Milk,	G. Wilson, Newton, Mass.,	Total solids, 10.17 per cent.; fat, 1.65 per cent.; skinned milk.
9381 N	Milk,	G. P. Atkins, Newton, Mass.,	Total solids, 10.07 per cent.; fat, 2.20 per cent.; skinned milk.
5941	Milk,	Alfred Proulx, West Andover, Mass.,	Total solids, 10.00 per cent.; fat, 1.60 per cent.; skinned milk.
9341 N	Spirit of camphor,	H. L. Coc, Mt. Auburn, Mass.,	53 per cent. of U. S. P. strength.

INSPECTION OF DAIRIES.

During the month of August, 1907, 136 dairies supplying milk for public sale in Massachusetts were examined. All but 14 of the number are situated in Rhode Island and Vermont. The Massachusetts dairies yielded the following data:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Scituate,	14	10	71.43	4	28.57

Total number of dairies examined (including those in Rhode Island and Vermont),	. . . . .	16
Number found to be free from objectionable conditions,	. . . . .	54
Number to which letters were sent,	. . . . .	82
Total number of conditions to which attention was called,	. . . . .	286
Percentage of dairies which passed inspection,	. . . . .	39.71

The names of the owners of the dairies in Scituate found to be worthy of commendation follow:—

Brown, A. E.	Ford Bros.	Stockbridge, H. J.
Brown, William.	Lawson, Thomas W.	Vinal Bros.
Cole, H. J.	Merritt, Asa.	Wagner, Charles M.
Curtis, A. B.		

RHODE ISLAND DAIRIES.

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Little Compton,	37	19	51.35	18	48.65
Portsmouth,	5	3	60.00	2	40.00
Tiverton,	41	11	26.83	30	73.17

Total number of Rhode Island dairies examined,	. . . . .	83
Number found to be free from objectionable conditions,	. . . . .	33
Number to which letters were sent,	. . . . .	50
Total number of conditions to which attention was called,	. . . . .	170
Percentage of dairies which passed inspection,	. . . . .	39.76

VERMONT DAIRIES.

Place.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Lyndon,	6	-	-	6	100.00
Lyndonville,	8	2	25.00	6	75.00
McIndoes,	1	-	-	1	-
Newport,	1	1	-	-	-
Putney,	14	6	42.86	8	57.14
Westminster,	9	2	22.22	7	77.78

Total number of Vermont dairies examined, 39
 Number found to be free from objectionable conditions, 11
 Number to which letters were sent, 28
 Total number of conditions to which attention was called, 102
 Percentage of dairies which passed inspection, 28.21

DISEASES DANGEROUS TO THE PUBLIC HEALTH.

The Legislature of 1907 amended sections 49, 50 and 52 of chapter 75 of the Revised Laws so that the same now read as follows:—

SECTION 49. A householder who knows that a person in his family or house is sick of smallpox, diphtheria, scarlet fever or any other infectious or contagious disease declared by the state board of health to be dangerous to the public health shall forthwith give notice thereof to the board of health of the city or town in which he dwells. Upon the death, recovery or removal of such person, the householder shall disinfect to the satisfaction of the board such rooms of his house and articles therein as, in the opinion of the board, have been exposed to infection or contagion. Should one or both eyes of an infant become inflamed, swollen and red, and show an unnatural discharge at any time within two weeks after its birth, it shall be the duty of the nurse, relative or other attendant having charge of such infant to report in writing within six hours thereafter, to the board of health of a city or town in which the parents of the infant reside, the fact that such inflammation, swelling and redness of the eyes and unnatural discharge exist. On receipt of such report, or of notice of the same symptoms given by a physician as provided by the following section, the board of health shall take such immediate action as it may deem necessary in order that blindness may be prevented. Whoever violates the provisions of this section shall be punished by a fine of not more than one hundred dollars.

SECTION 50. If a physician knows that a person whom he is called to visit is infected with smallpox, diphtheria, scarlet fever or any other disease de-

clared by the state board of health to be dangerous to the public health, or if one or both eyes of an infant whom or whose mother he is called to visit become inflamed, swollen and red, and show an unnatural discharge within two weeks after the birth of such infant, he shall immediately give notice thereof in writing over his own signature to the selectmen or board of health of the town; and if he refuses or neglects to give such notice, he shall forfeit not less than fifty nor more than two hundred dollars for each offence.

SECTION 52. If the board of health of a city or town has had notice of a case of smallpox, diphtheria, scarlet fever or of any other disease declared by the state board of health to be dangerous to the public health therein, it shall within twenty-four hours thereafter give notice thereof to the state board of health stating the name and the location of the patient so afflicted, and the secretary thereof shall forthwith transmit a copy of such notice to the state board of charity.

At a meeting of the State Board of Health, held Aug. 1, 1907, the following diseases were declared to be "dangerous to the public health," and hence notifiable under the provisions of the above sections:—

Actinomycosis.	Malignant postule.	Tuberculosis.
Asiatic cholera.	Measles.	Typhoid fever.
Cerebro-spinal meningitis.	Scarlet fever.	Typhus fever.
Diphtheria.	Smallpox.	Varicella.
Glanders.	Tetanus.	Whooping-cough.
Leprosy.	Trichinosis.	Yellow fever.

Chapter 183 of the Acts of 1907 directed the Board to define what diseases shall be deemed to be "dangerous to the public health," as the term is used in chapter 213 of the Acts of 1902, entitled "An Act relative to compensating cities and towns for caring for persons infected with the smallpox or other diseases dangerous to the public health." On August 1, the Board voted that the diseases above-named, with the exception of tetanus, trichinosis and varicella, should be deemed to be "dangerous to the public health," as the term is employed in chapter 213, Acts of 1902.

PASTEURIZED MILK.

Referring to the decision of the board of aldermen of the city of New York, that pasteurization of the public supply is neither necessary nor advisable, "Medical Record," (June 15, 1907) says editorially, in part:—

The agitation of the subject has, however, already borne fruit in opening the eyes of the public and directing more forcibly the thoughts of the pro-

fession to the vital importance of a pure milk supply. The first requisite to this is cleanliness at the source, for no amount of pasteurization or even of boiling will convert a milk full of gross impurities into an acceptable food. All that pasteurization aims to do is to destroy the germs which even the best of milk contains in greater or lesser numbers, and with which milk, carelessly handled, drawn from diseased cows, or carried in imperfectly sterilized bottles or cans, actually swarms. Therefore, if the immediate result of the agitation in and out of the public press is only a more careful inspection of the farms and creameries at the source of our milk supply, it will not have been in vain.

The opponents of pasteurization contend that the process renders milk unfit, or at least less fit, for consumption, since it destroys the contained enzymes, and so causes a deterioration in its nutritive qualities. Without attaching too much importance to this theoretical objection, it may be conceded that untreated milk, if absolutely free from the germs of tuberculosis, pus cocci and other pathogenic micro-organisms, is preferable to the sterilized (boiled) or even pasteurized fluid. Doubtless raw meat from the recently killed animal contains certain nutritive principles which are destroyed by heat, but there are advantages in cooking meat which by universal consent outweigh the loss in nutritive properties which it may sustain in the process. It is also alleged, as though this were an argument against the principle of pasteurization, that the agitation is furthered by the makers of pasteurizing apparatus. It is not unlikely that these manufacturers are alive to the possible benefit they may derive therefrom, and if they are thereby stimulated to perfect their apparatus the community will profit as well as themselves. The fundamental question is whether pasteurization does or does not prevent disease, and its determination can be arrived at only by discussion and study, so that the present agitation of the subject, even if it were of purely commercial origin, as it is not, can but be productive of good.

THE MILK SUPPLY OF COPENHAGEN.¹

COPENHAGEN, May 21, 1907.

As the question of the milk supply of great cities is now being hotly discussed, not only in New York, but in many other parts of the civilized world, it may perhaps be of some interest to your readers to hear a little about the way in which this question is solved in Copenhagen.

The quantity of milk sold in Copenhagen has undergone a very considerable increase during the last half of a century. While in 1840 about 3,000 gallons of milk were sold a day, now more than 40,000 gallons are daily consumed. The daily average a head is estimated at $\frac{8}{11}$ pints, or about four times the quantity consumed by a Londoner. But this increase has only been possible because, as far back as 1878, the milk trade

¹ Reprinted by permission of the editor and publishers of "Medical Record" (New York, June 15, 1907).

in Copenhagen was arranged according to the strict demands of hygiene. Perhaps the most remarkable fact regarding this is that private initiative has proved strong enough to revolutionize the milk supply of a great city like Copenhagen and to place it on the high level it now occupies. The merit of having accomplished this feat undoubtedly appertains to the Köbenhavns Mælkforsyning (the Copenhagen Milk Supply Company), founded in 1878 by Mr. G. Busek in company with the late Professor Panum, Drs. Borch and Engelsted, and other prominent men. The guiding principle of the company has been from the very first "pure milk from healthy cows," and later events have proved how right it was in accepting this rule for its work. By unswerving adherence to this principle it has indirectly forced other similar enterprises, since sprung up, to follow in its wake, and has thereby conferred an incalculable benefit on the public.

Thirty years ago the milk supply of Copenhagen was in a deplorable state. The milk was furnished by farmers in the environs of the metropolis, feeding their cows on all sorts of inferior fodder, or by distillers of spirits in the city of Copenhagen itself, who kept cows in order to utilize the residual products of the distillation. If the sanitary state of the cows and the handling of the milk in the country left much to be desired, it will easily be believed that it fared far worse with the milk produced within the walls of Copenhagen, where the cows were never let out into the open air, and where some of them were kept in stables in the second stories of houses in the oldest and most crowded part of the town.

No wonder that the milk was nearly always adulterated and most often tainted and infected. In 1876, of 111 samples of cream only 2 contained the necessary amount of fat, and 24 had been adulterated by the addition of starch; of 52 samples of sweet milk only 8 turned out to be what they were sold for.

On this dark background the milk supply of to-day stands out in a very flattering light. But I think that a perusal of the precautions taken by the Köbenhavns Mælkforsyning will prove this contention better than many flourishes of rhetoric. All the purveyors to the company engage themselves to feed their cows on forage of only the best quality. All cows used in the production of the so-called "infants' milk" are to be submitted to the tuberculin test at least once a year and must not have shown any reaction. All calves reared by the farmers with a view to milk production are also tested with tuberculin. Before the return to the stable in the fall the tail, the udder and the hind quarters of the cows have to be shaved.

Seven veterinary surgeons, appointed and paid by the company, en-

ensure the observance by the farmers of these regulations by visiting the farms fortnightly, and they report once a month to the company on the composition and quantity of the fodder, as on the number and state of health of the cattle. They are also empowered to examine the cows as often as they deem it desirable.

The milking has to be done with the utmost cleanliness. During this operation, therefore, every person of the milking staff must wear a special dress, exclusively reserved for this use: he is provided with water and a towel, so that he can keep his hands clean. The lighting of the stable must be so good as to permit the operator to do his work with the necessary care. Immediately after the milking the milk is strained and cooled down to a temperature of 5° C., usually by means of the Lawrence apparatus. At this temperature it is kept until the transport to the railway station takes place.

The milk is conveyed from the farms to the factory of the company in Copenhagen in milk cans belonging to the company and returned daily to the farmers after having been cleaned and sterilized in Copenhagen. The cans hold, as a rule, 11 gallons. The consignor plumbs the cans sent by him with a seal of lead bearing the name of his farm, so that the contents cannot be tampered with. In the summer the milk vans of the farms must be provided with an awning protecting the cans against the sun during their transport to the railway station, where the milk arrives shortly before the departure of the train. The milk cans are then conveyed to the city in special cold storage vans belonging to the State or to the company. The trains arrive at Copenhagen at 10 o'clock in the morning and at the same hour in the evening, carrying about 600 cans with a content of more than 6,000 gallons of milk and cream. The cans are weighed and a sample is taken of the contents of every can. The samples are analyzed and tasted by specially trained women experts. If there is the least thing abnormal about the taste of the milk the contents of the can in question are not sold, but used for the manufacture of butter and cheese. The temperature of the milk is also measured, and if found too elevated the attention of the farmer concerned is drawn thereto.

After this first examination the milk, cream, etc., is passed through a filter of sterilized sand and gravel, cooled down, and put into cans, which are subsequently sealed by the company. From these cans the milk is later on distributed in the various parts of the town, the cream, however, being sold in snipped bottles of a liter, half a liter, etc., as is also the so-called "infants' milk," intended for the nourishment of babies. This milk is treated with still greater precautions, the milking, for example, taking place in specially constructed milk pails containing a refrigerat-

ing apparatus, whereby the temperature of the milk is already considerably reduced during the milking operation. As experiments have shown, this procedure increases very effectually the period during which the milk keeps sweet and unaltered.

The sale of most of the milk is effectuated from the milk vans of the company circulating throughout all quarters of the town and into some of the suburban districts in the vicinity of Copenhagen. With each van go a driver and from three to five boys. The latter distribute the milk in the houses, fetching and bringing the buyers' vessels, into which the desired quantity is drawn off from the cans. The cream and the infants' milk are sold, as before mentioned, in bottles sealed by the company.

In this way an excellent milk supply is furnished to the population of Copenhagen. Notwithstanding the great care given to the article it has not been necessary to raise the price above what was paid before the company came into existence. A pint of the best quality of cream, warranted to contain 29 per cent. fat, costs 15 cents, while cream with only 14 to 15 per cent. of fat may be had for 9 cents a pint. The price of a pint of sweet milk is $2\frac{1}{2}$ cents.

Only a minimal part of the milk is pasteurized by heating it to 85° C. for twenty minutes. Experiments have shown that milk is undoubtedly deteriorated by heating, the enzymes being destroyed, and that even if pasteurization may do away with certain bacteria, as those of typhoid, scarlet fever, diphtheria, tuberculosis and lactic acid fermentation, the bacteria of putrefaction are able to resist the procedure and multiply rapidly afterwards. Such a nimbus adhered, however, to the name of Pasteur that some years ago there was a certain amount of uncertainty whether it was not better that all milk offered for sale should be pasteurized. But as far as regards Copenhagen the contest has now come to a close, with an undoubted victory for the non-pasteurization side.

THE MILK SUPPLY OF VIENNA.¹

BY ERNST J. LEDERER, M.D., VIENNA.

The dairy company of lower Austria, which supplies the greater amount of the milk consumed in Vienna, is subject to control by the provincial diet of lower Austria. The central depot in Vienna receives the milk from 76 affiliated dairies throughout the province, and these in turn receive the daily supply from a total number of 5,222 individual producers. The principal aim of the organization has been to regulate the methods of obtaining and handling the milk at the various places of production, an object which experience has shown to be especially im-

¹ Reprinted from "Medical Record," June 15, 1907, with the permission of the editor and publishers, who also courteously loaned the blocks for the illustrations.

portant, since farm milk, although superior in other respects, lacked that keeping quality which is one of the essential requirements in milk intended for city consumption. This aim was attained by making it immediately incumbent upon the directors of the affiliated dairies to inspect the milk at the sources of supply, according to definite instruc-

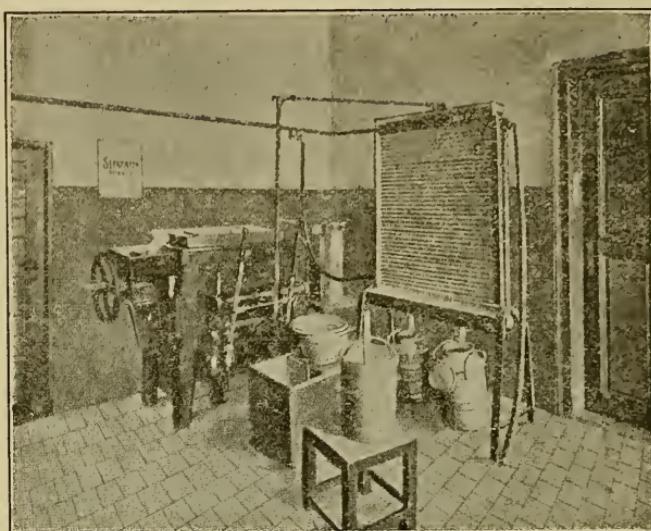


FIG. 1.—Cooling apparatus of a milk-receiving station in the country.

tions given them by the government inspector of dairies. The inspectors visit the various stables, criticise the condition of the stock and the cleanliness of the barn, etc., and make the owners remedy any existing defects or introduce needed improvements. They also supervise the feeding and care of the cows, as well as the milking. The fundamental principles which must govern the manner of feeding, tending and milking the cows, are thoroughly explained by the government inspector to the members of an affiliated dairy when such a one is established. Each member is supplied with a book in which is entered the daily amount of milk delivered, and to this book is appended a printed list of regulations, compliance with which is legally obligatory. The government inspector further has the duty of visiting and inspecting the various dairies at regular intervals, and of rendering reports of such visits both to the provincial diet and to the directorate of the Dairy Company of lower Austria. Veterinary inspection of the milch cows has likewise been introduced.

The new-drawn milk must be delivered at the local depot after each milking, if possible while still warm from the cows. It is then measured, tested, purified and cooled, and if not sent off immediately it is placed

in the front compartment of the refrigerating room until shipped. The local depot in which the milk is received and treated is a building which in every particular conforms to modern requirements. Each affiliated dairy has such a depot, which comprises ice-house, cooling compartment, wash-house and the necessary apparatus, such as pipe systems for cool-

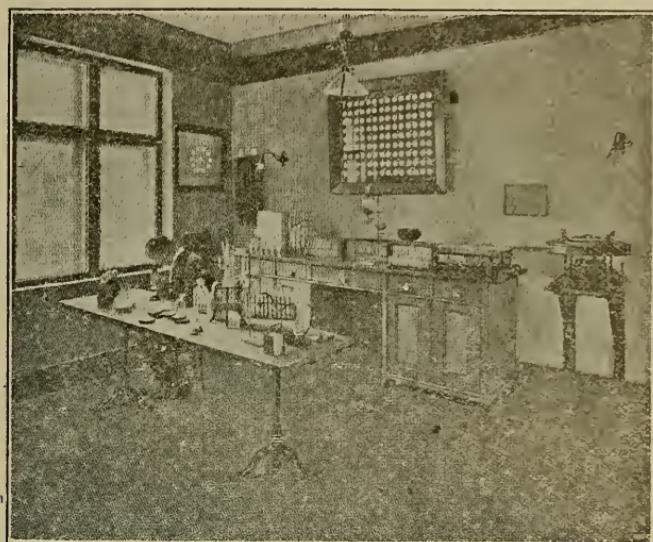


FIG. 2.—Laboratory.

ing, strainers for purifying the milk, apparatus for determining the percentage of fat, lactometers and thermometers for testing the milk, as well as centrifuges and the requisite appliances and apparatus for butter-making. Since the milk delivered to the local depots by the various members must be transported to the railway station to be shipped to the central depot in Vienna, the affiliated dairies have wagons which can be covered, to protect the milk against the heat of the sun. The value is fixed according to quantity and percentage of fat, the latter being determined by the government agricultural chemical laboratory in Vienna. The average contents of fat, according to the laboratory's findings, are as follows:—

At Easter.

	<i>As Basis.</i>	Percentage of Fat.
No. of affiliated dairies, 5,	.	3.57
No. of affiliated dairies, 5,	.	3.61
No. of affiliated dairies, 5,	.	3.65
No. of affiliated dairies, 5,	.	3.60
No. of affiliated dairies, 5,	.	3.65
Average,	.	3.62

At Christmas.

	Percentage of Fat.
No. of affiliated dairies, 5,	4.11
No. of affiliated dairies, 5,	4.00
No. of affiliated dairies, 5,	4.12
No. of affiliated dairies, 5,	3.97
No. of affiliated dairies, 5,	3.89
Average,	4.02

The amount of impurities contained in the milk from each producer furnishes a criterion by which are judged the care and cleanliness observed in milking. The high state of purity in which the milk from the various dairies reaches Vienna may be seen from the following table, which gives (in milligrams) the amount of impurities contained in one liter of milk, and showing comparison with various German cities. These investigations were likewise conducted by the agricultural chemical laboratory in Vienna:—

	Minimum.	Maximum.
Vienna,	0.50	7.50
Würzburg,	3.02	8.10
Leipsie,	3.80	11.50
Munich,	9.00	27.90
Berlin,	10.30	50.00
Halle,	14.92	72.50

In the central depot, however, the milk undergoes still further purification, so that on reaching the consumers it contains only a mere fraction of a milligram of impurities per liter.

When the milk reaches the central depot in Vienna it is poured into a large vat and weighed. The vat is provided with a system of strainers and close-meshed gauze for purifying the milk. The gauze is renewed every time after it has been used, and before being used again it is carefully washed and sterilized in live steam. The purification process gives very gratifying results. The milk, which is already in a high state of purity when it reaches the central depot, contains only from .3 to 1 milligram of impurities per liter after having undergone the additional purifying process in the central depot. From the weighing vat the milk is led into the pasteurization apparatus, where it is heated to 70° C. The receiving hall contains three such pasteurizers.

Although the control exercised by the affiliated dairies, the government inspector and the veterinary surgeons aims at excluding milk from farms or barns in which contagious diseases prevail, it is not impossible, in view of the great prevalence of tuberculosis among milch cows, that milk from diseased cows may reach the dairy. For this reason the

entire quantity of milk intended for direct consumption is pasteurized at 70° C., whereby all disease-producing organisms that may be present,

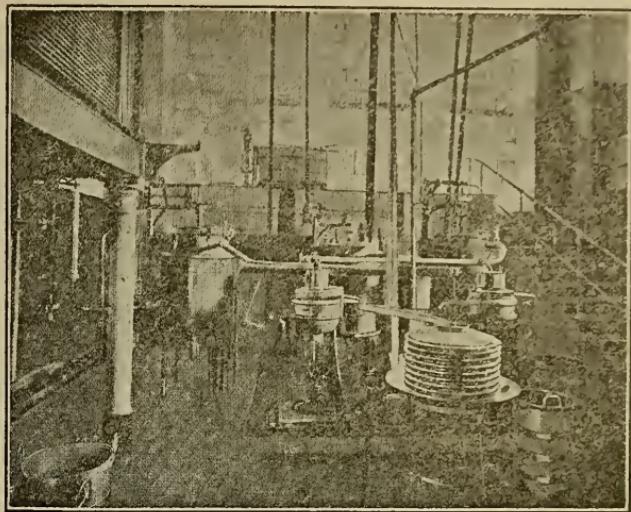


FIG. 3.—Pasteurizing room.

but especially the tubercle bacillus, are rendered harmless without the milk undergoing any essential changes, either physically or chemically. After pasteurization the milk is pumped on to the pipe coolers, where it

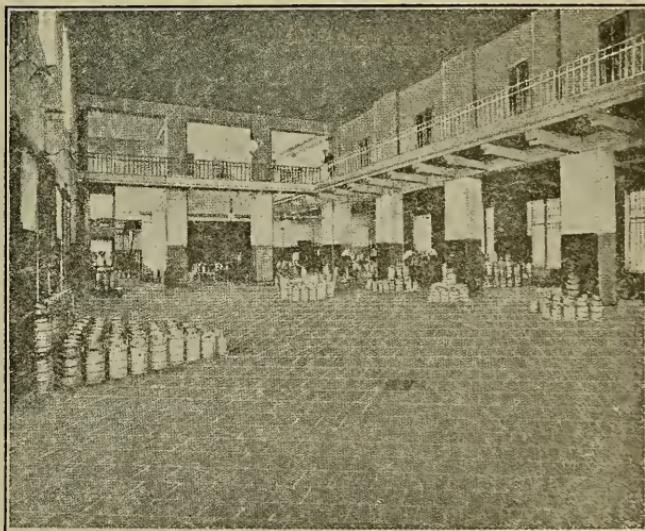


FIG. 4.—Hall for reception and distribution of milk.

is rapidly chilled to from 2° to 4° C. (35.6° to 39.2° F) and thoroughly aired. From the coolers the milk is run into large galvanized-iron vats,

from which it is poured into cans or bottles. The latter process takes place by means of bottling apparatus. Immediately after having been filled the bottles are stoppered — by means of machinery — with paraffined paper stoppers, which bear the date of bottling.

After pasteurization a certain quantity of the milk is creamed through two centrifuges, and divided into whipping cream (30 per cent. fat), tea cream (16 per cent.) and coffee cream (10 per cent.), as well as skimmed milk. These products are each cooled to a low temperature in separate

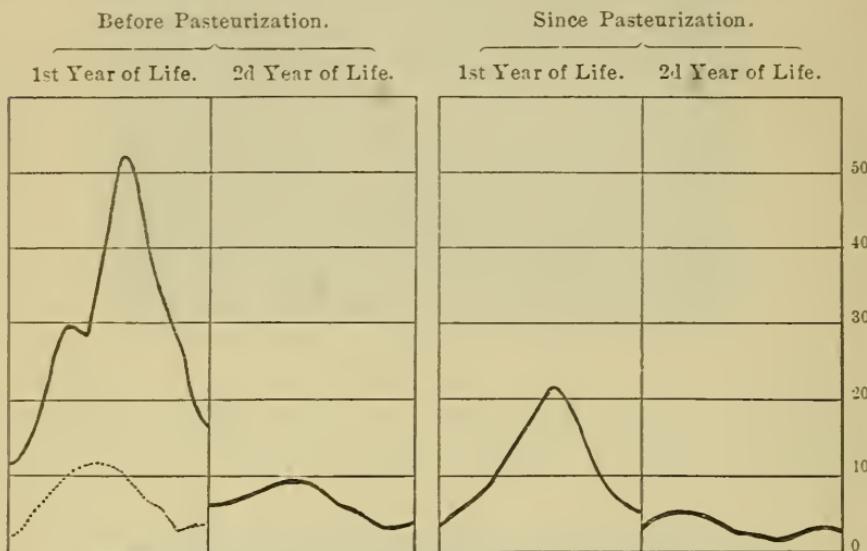


Chart showing the mortality of bottle-fed infants in Vienna before and since the system of pasteurization was introduced. The dotted line in the first column indicates the mortality of breast-fed children.

apparatus immediately after the centrifugal process. The various kinds of cream are bottled by machinery, while the skimmed milk is led into a separate compartment and poured into cans which are plainly marked "Skimmed Milk" in red labels. The skimmed milk is utilized by bakers in the making of fine pastry, etc., any surplus amount being made into whey cheese. Unsold cream is made into butter.

The central depot contains bathrooms, and a medical examination room in which all employees who handle the milk are periodically examined by a municipal health officer. Persons suffering from tuberculosis or other contagious diseases are excluded. Both male and female employees are enjoined to bathe regularly.

Separate from the other departments is the room in which the milk for children is handled. For this purpose is used the milk from only one dairy, the cows supplying which are tested with tuberculin, to make certain that they are free from tuberculosis, and kept under rigid inspec-

tion by the Veterinary Board of lower Austria. This milk very closely resembles human milk in its chemical composition. It is sterilized at 102° C.

The process of pasteurization has absolutely no effect on the nutritive value of the milk while rendering its taste more pleasant; neither does it affect the formation of cream. The system has been in use for seven years; and the beneficial effects of the improved milk supply, especially with regard to the feeding of infants, are demonstrated by the statistical data. (See chart.) The proportion between the mortality rates for breast-fed and bottle-fed children was formerly (especially in the summer months) 1:20, while it is now from 1:5 to 1:8. The circumstance that bottle-fed children are given better milk reduces the rate of mortality for those in the second year of life also. Regarding the cost of the milk, the process of pasteurization increases the price from 3-10 to 1 heller per liter (1-13 to 1-4 cent per quart).

LATENT DIPHTHERIA.

A PUBLIC HEALTH PROBLEM.¹

MYER SOLIS-COHEN, A.B., M.D., *Instructor in Physical Diagnosis, University of Pennsylvania, Philadelphia.*

Causes of Diphtheria Prevalence.

From the public health viewpoint, diseases are studied in order to prevent their spread. Effective prophylactic measures, based on scientific observations, have caused some infectious diseases to disappear from civilized communities, while others have become comparatively rare. Yet, despite the ever-increasing knowledge as to its bacteriology and methods of propagation, diphtheria still remains a fairly common affection. Why is this?

One reason is that only the well-marked cases are isolated and placarded, while persons suffering from the milder forms of diphtheria are permitted to walk the streets, attend school and frequent public places. Another unguarded avenue of contagion is kept open through the false sense of security given by the rules now in vogue as to disinfection. Fomites, which, as shown by Chapin, Hill, Weichard and Welch, only rarely contain the germs, are required to be disinfected, while no attention is paid to the virulent bacilli which so frequently are present and persist for long periods in the noses or throats of persons with whom

¹ Reprinted from the "Journal of the American Medical Association," July 6, 1907.

the patient has been in just as intimate contact. The fault lies partly with physicians, who do not recognize the latent forms of diphtheria, and partly with sanitary officers, who fail to seek out and guard as sources of infection all those who are liable to transmit the disease.

The Author's Cases of Latent Diphtheria.

I have seen 27 cases of latent diphtheria, most of them in my capacity as assistant medical inspector of the Philadelphia Bureau of Health. I regard as diphtheria any pathologic condition, local or general, due to infection by specific diphtheria organisms, as defined by Williams, and apply the term latent to those forms unassociated with pseudo-membrane.

Case 1.—J. S., a schoolgirl of about twelve years, presented enlarged and reddened tonsils on April 29, 1904, and was excluded from school for tonsilitis. A culture taken at the time and one taken later both contained diphtheria bacilli. The girl was not sick at any time.

Case 2.—N. McI., a girl of about fifteen years, had been undergoing treatment by her family physician for chronic sore throat. She complained of pain in the throat and a general feeling of soreness in the body while at school May 12, 1904, and on examination her tonsils were found to be red and swollen. She was excluded from school for "rheumatic sore throat." A culture showed the presence of diphtheria germs. Despite active treatment by means of disinfectant sprays, swabbings and gargles, the diphtheria bacilli persisted in the throat until May 23. The girl felt perfectly well generally the day after she was sent home, but on May 20 the throat was still sore.

Case 3.—W. L. had a reddened throat and seemed to have fever in school on May 7. Bacteriologic examination was positive. In a day or two the throat was normal. The boy was never sick. Yet the diphtheria bacilli persisted for five days.

Case 4.—G. W., boy, aged about fifteen years, on May 9, at school, presented a reddened throat, a culture from which proved positive. The boy felt perfectly well and the next day his throat was normal in appearance. The bacilli nevertheless persisted for five days.

Case 5.—C. R., a boy of about eight years, was excluded from school for tonsilitis, his tonsils being reddened and swollen. He returned in a week with the throat condition unchanged and was again excluded. He had been without medical treatment. On May 12 he returned without showing improvement, and a culture was taken which proved positive. The child was not sick, but looked unhappy.

Case 6.—F. C., a little child in a home for colored cripples, had been exposed to true diphtheria on May 15; her fauces were reddened and contained diphtheria bacilli. Her throat did not feel sore. It was examined on several occasions and never gave any evidence of diphtheria. The child was well and playing around. She was given no antitoxin.

Case 7.—S. S., a child in the same home, was exposed to the same contagion. Her throat, though practically negative when examined on May 17, contained diphtheria bacilli. The child's pulse was rapid. There was no other sign of diphtheria.

Case 8.—J. A., another child exposed to diphtheria in the same home, was given an immunizing dose of 500 units of antitoxin, although her throat on May 15 gave a negative culture. On May 22 she complained of her throat feeling sore, and though on inspection the throat looked clear, a culture proved positive. The child was well and about.

Case 9.—O. P., a little colored boy, day after day, at school, would complain of headache, which, he said, had persisted since an attack of tonsilitis three weeks before. Nothing wrong could be found on several examinations. Finally, on May 23, a culture of the throat was taken, which showed the presence of diphtheria bacilli.

Case 10.—E. O. N., living in the house where her brother was sick with true clinical diphtheria, developed a mild sore throat which gave a positive culture. The child was not very ill and did not require antitoxin. There was no membrane in the throat.

Case 11.—M. M., a girl of about eight years, complained at school for several days of headache, nausea and sore throat. When examined on May 27 the throat contained diphtheria bacilli, which persisted until June 20. There was no pseudo-membrane in the throat at any time.

Case 12.—M. P., a girl, lived in an orphanage in which four cases of diphtheria had occurred in two weeks, despite the fact that as soon as discovered each patient was removed to the Municipal Hospital for Contagious Diseases, and the orphanage was disinfected. The medical inspector heard of seven children with tonsilitis having been isolated for several days in the infirmary and promptly took cultures of their throats on May 25. This child was one of four who gave positive cultures. Her throat was perfectly clear at the time.

Case 13.—J. L., a boy isolated for tonsilitis at the same orphanage, when examined had a clear throat, which nevertheless contained diphtheria bacilli.

Case 14.—R. S., a boy, also isolated for tonsilitis in the same way, gave a positive culture, although his throat was clear at the time.

Case 15.—A. H., a boy, was the fourth of those isolated for tonsilitis who were suffering from latent diphtheria. His throat also was clear when examined.

Case 16.—F. B., a boy of about eight, was told by his mother to consult the medical inspector at school to find out the cause of his having "kernels" in his neck. She said he was subject to them. On examination the tonsils were seen to be very large, but there was no sign of a deposit. The boy had not been ill at all. He was excluded for tonsilitis, and a culture was taken on June 2 that proved positive. A culture four days later was negative. At the time of the first examination, on May 2, and for two days following, the child's four-year-old brother, E. B., suffered from stiff neck. A culture of his throat was taken on June 7. Although no abnormal appearance was noted

the culture was positive, and when the child (E. B.) was seen two days later he was sick that day (June 9) for the first time. A typical diphtheritic membrane covered the back part of the tonsils.

Case 17. — H. H., a boy of about ten years, complained June 3, while at school, of headache, belly ache, nausea and vomiting. His throat was slightly inflamed. Otherwise the child was apparently well. A culture was taken and proved positive. Although the symptoms complained of had disappeared by the next day, the diphtheria bacilli persisted for more than a week.

Case 18. — L. A., a girl of about eleven years of age, was sent from home the moment her brother was taken sick with undoubted clinical diphtheria, but she continued to attend school. Twelve days later her throat was examined, and the tonsils were seen to be enlarged and reddened, but no patch was anywhere visible. The child complained of no subjective symptoms; her throat did not feel sore nor did she experience pain in deglutition. A culture taken on Sept. 19, 1904, contained diphtheria bacilli. On October 5 the tonsils were greatly enlarged and reddened and still gave a positive culture. The diphtheria bacilli did not disappear until October 11, on which day the tonsils were still reddened and were greatly enlarged, almost meeting in the median line. This was six days after the child sick with clinical diphtheria had given a negative culture.

Case 19. — J. R., a girl of about eight years, was absent from school for ten days with sore throat, but received no medical attention. She returned to school November 21, and remained in school until November 23. Her two sisters were stricken with true clinical diphtheria on November 22. The child at that time appeared perfectly well.

Case 20. — E. G., a boy of about eleven, on November 22 was in the same room with the sister of the patient in Case 19, who developed true clinical diphtheria that same day. The boy (E. G.) had always had hypertrophied tonsils and was subject to frequent attacks of tonsilitis, which was almost constant during the fall, winter and spring. He had been no worse during the past few weeks than previous to that time. His tonsils were enlarged, shiny and reddened on November 28, and contained diphtheria bacilli which persisted for five days.

Case 21. — J. M., a girl, on December 13 was sent to the medical inspector in school on account of a swelling in the neck. The tonsils were reddened and enlarged and were prominent externally. There were no white spots and no other symptoms. The child had had pain in her ear, etc., a week previously. The throat gave a positive culture, but two days later the culture was negative.

Case 22. — J. B., a boy, in school December 7, had a sore and reddened throat, which gave a positive culture. A week later a culture of his throat proved negative.

Case 23. — F. S. was referred to the medical inspector at school on account of otorrhea. A routine experimental culture was taken, which proved positive. When the child was seen a few days later, on Jan. 9, 1903, there was no sign of diphtheria and the throat gave a negative culture.

Case 24.—W. G. M., on January 20, complained in school of a headache and presented a mild pharyngitis. A culture taken from his throat contained diphtheria bacilli, which persisted until February 8.

Case 25.—M. S., a girl, had tonsilitis in school on February 8 and her throat gave a positive culture. Her physician said that he found no tonsilitis, but on February 10 the medical inspector, when taking a culture that proved negative, noted that a mild degree of tonsilitis was still present.

Case 26.—J. S., a girl, complained of headache in school on February 10. She felt ill but did not suffer pain on swallowing. There was slight reddening and swelling of the tonsils, but no white patches were visible. A culture showed the presence of diphtheria bacilli in the throat. A couple of weeks previously an aunt had had a white spot on her throat which received no treatment. On February 13 the girl still felt ill. Her throat was slightly inflamed and ulcers were present on the inside of her lower lip. Cultures from both the throat and the ulcers were negative.

Case 27.—L. C., a little girl, developed dysphagia on June 29, 1905, the tonsils being enlarged but not reddened. The temperature was 101° F., and remained elevated for two weeks. The pulse averaged about 116. On July 7 the tonsils were still swollen and the crypts were filled with secretion. The urine at that time contained a minute trace of albumin but no casts. Breathing became very noisy, but after an application of adrenalin solution was much easier. The child was put on a gargle of $\frac{1}{500}$ formaldehyd solution, and silver nitrate, 60 grains to the ounce, was rubbed on the throat. The breath was foul. On July 10 the crypts were still filled with white secretion and a positive culture was obtained. The next day the tonsils were still swollen, but no membrane or secretion could be seen. The following day the throat was clear. The second negative successive culture was taken on July 16.

It is only fair to state that the bacteriologic laboratory that reported these cultures as showing the presence of diphtheria bacilli regards all bacteria morphologically indistinguishable from typical diphtheria as true Klebs-Loeffler organisms, and takes no account of the so-called pseudo-diphtheria bacillus or Hoffman bacillus. Consequently, a question as to the identity of the bacilli found may be raised by those who believe that the two organisms belong to different species. Such persons need regard as suffering from latent diphtheria only those patients who either were in contact with patients suffering from true membranous diphtheria or who themselves appeared to give rise to cases of membranous diphtheria. This will include Cases 6, 7, 8, 10, 12, 13, 14, 15, 16, 18, 19, 20 and 27. The other cases, 1, 2, 3, 4, 5, 9, 11, 17, 21, 22, 23, 24, 25 and 26, may be regarded as conditions of sore throat caused by diphtheria-like bacilli, although it is my opinion that the greater number, if not all, of these organisms were true diphtheria bacilli.

Bacteriologists' Explanation of Latency in Diphtheria.

The great variations observed in the clinical manifestations of diphtheria are explained by Abbott, Wesbrook and other bacteriologists as due to variations in the virulence of the bacillus and in the susceptibility of the individual; not so much to the bacilli as to the soil on which they grow.

One of the principal factors in the mechanism of individual immunity was believed by Behring and Schanz and proved by the researches of Neisser, Orlowsky, Fischl and Wunscheim and Wasserman to be the presence in the blood of sufficient antitoxin, a condition which is possibly congenital.

Latent Diphtheria as seen by Other Observers.

The majority of physicians, according to Chapin, are skeptical about the diagnosis when they see diphtheria without exudation and the patient not confined to bed. Mild atypical cases, however, are extremely common. Years before the discovery of the Klebs-Loeffler organism J. Solis-Cohen, Mackenzie, Jacobi and others called attention to the occurrence of diphtheria without local deposit. More recently Abbott, Chapin, Cobbett, S. Solis-Cohen and Eshner, Fussell, Koplik, McFarland and Babcock, Morse, Park, Rupp, Thorne, Wesbrook and hosts of others have confirmed these earlier observations. A graphic description of latent diphtheria and of its danger to the public health was written by Jacobi in 1884:—

The symptoms are often but few. A little muscular pain and difficult deglutition are, perhaps, all that is complained of. Women will quietly bear it; men will go about their business. . . . There is as much diphtheria out of bed as in bed; nearly as much out of doors as in doors. Many a mild case is walking the streets for weeks without caring or thinking that some of his victims have been wept over before he was quite well himself. . . . Diphtheria is contagious. Severe forms may beget severe or mild forms. Mild cases may beget mild or severe cases.

The picture, however, is not always the same. The clinical features presented by 19 cases from which Biggs obtained virulent cultures were those of typical acute follicular tonsilitis or of simple acute pharyngitis. In Koplik's cases there was little or no constitutional disturbance. In some of the patients the fauces showed a general hyperemia with enlargement of the tonsils, which became still more prominent when the patient gagged, revealing the enlarged open lacunæ. In a number of

instances the lacunæ contained fibrinous plugs in which virulent Klebs-Loesfler bacilli were found. A similar condition, but without visible hyperemia around the plug, is described by Charsley. Park describes a group of cases in which the mucous membrane is only slightly swollen and hyperemic. Cobbett found diphtheria bacilli in cases of slight sore throat. In the latent forms mentioned by Williams, which are unaccompanied by obvious illness, a nasal catarrh, increased pulse-frequency, an irritable heart, a redness of the fauces or slight tonsilitis may severally be the only symptoms.

Importance of Latent Diphtheria from the Public Health Standpoint.

From the public health standpoint these mild cases of diphtheria are extremely important. Crowly, Lesieur, Thorne, Wesbrook, Wilson and McDaniel, McFarland and Babcock, Morse, Park and others have called attention to the fact that persons with very slight sore throat, due nevertheless to the Klebs-Loeffler bacillus, may infect others with a severe form of diphtheria. Indeed, Cobbett and Packard believe that from the hygienic standpoint the mild cases are more responsible for spreading the disease than are the notified cases, because no precautions are usually taken in regard to them.

Latent Cases a Starting Point in Diphtheria Epidemics.

The part played by these unrecognized cases in the production of diphtheria epidemics has been shown by many observers. Thorne, Power, Blaxall, Parson, Page, Jacobs, Fasbroke, each reporting from different English towns and parishes, have observed concurrently with and preceding and sometimes following the prevalence of unmistakable diphtheria the occurrence of a large amount of comparatively trifling sore throat, much of it never coming under medical observation, which serves as the connecting link between groups of diphtheritic attacks. During an epidemic of diphtheria at Pirbright, according to Power, cases of trivial sore throat, or "colds" that were not perhaps heard of (except by close questioning), often preceded and were seemingly responsible for later occurrences of true and fatal diphtheria in the family, especially where there were many young children. In such families, severe or fatal cases of diphtheria tended to occupy a position midway in a series of attacks that began and ended as sore throat.

Washbourn and Hapwood report the case of a child with mild coryza who was examined after diphtheria had broken out among his companions and was found to harbor virulent diphtheria bacilli. Williams mentions a case of indefinite sore throat that transmitted to two children a

nasal infection containing true virulent diphtheria bacilli, but without other disturbance of health.

A house infection of diphtheria was traced by Neisser to a case of chronic sore throat with diphtheria bacilli. Swan describes two house epidemics of diphtheria, directly traceable to cases of ordinary sore throat in which bacteriologic examination showed the presence of diphtheria bacilli. After describing the occurrence of diphtheria in a household following the visit of a child who had mild sore throat for two months previously, Bissel states that there are many such fully authentic cases in Buffalo.

Latent Cases responsible for Diphtheria Outbreaks in Hospitals.

Several outbreaks of diphtheria in hospitals have been attributed to latent cases. In a hospital for children at Frankfurt, Cuno found the source of an epidemic, which persisted in spite of the most vigorous disinfection, to be a nurse who suffered from a chronic sore throat. Andrewes found virulent diphtheria bacilli in 6 cases of simple sore throat, with a few points of exudation, occurring among the female members of the staff of St. Bartholomew's Hospital. In a ward in the Children's Hospital at Basle, in which several cases of diphtheria had developed, Feer obtained diphtheria bacilli from the tonsils of 2 children who had sore throat, fever and enlargement of the cervical glands, but without false membrane.

The Occurrence of Latent Diphtheria in Public Schools.

Many cases of latent diphtheria have been found among school children. Of 586 children with sore throats examined, Goadby found diphtheria bacilli in 190 (3 per cent.). Chapin states that of 2,038 apparently benign sore throats found in children at school in Hartford, 591 (29 per cent.) gave positive cultures. Parkes examined 3,000 sore throats and found diphtheria bacilli in 343 (14.3 per cent.). Berry and Washbourn report the persistence for two months of a series of mild sore throats following the introduction of diphtheria into a girl's school. At intervals of one month a number of cases of true diphtheria would occur. Washbourn then examined all the scholars with any degree of sore throat and discovered diphtheria bacilli in 17. In a boarding school where there had been several cases of diphtheria, Peck examined 5 pupils with slight ailments and found that 3 were harboring diphtheria bacilli. Williams reports the occurrence of a case of true diphtheria contracted in a school from a boy convalescent from tonsilitis, who had an unduly frequent pulse and whose nose contained diphtheria bacilli. He also mentions another pupil in the same school who had a slight tonsilitis and was found to have the specific organisms in his throat.

The Control of Latent Diphtheria by the Health Authorities.

The cases cited from by personal experience and those reported by other observers prove that diphtheria may occur in a latent form which is just as contagious as are the more marked cases with membrane, and consequently more dangerous to the public health.

The duty of the sanitary authorities to protect the public from patients with diphtheria applies to mild as well as to severe cases. There are few arguments for municipal control of well-marked cases that do not apply with equal force to the latent forms. The danger to the community of a diphtheria patient does not depend on the severity of the infection, but on his liability to transmit the disease.

I believe, therefore, that the health authorities should insist on strict isolation of latent cases of diphtheria. The suggestion of Park that the attending physicians themselves determine whether cases without characteristic symptoms be treated as diphtheria or not does not seem to me practicable or fair owing to the great differences of opinion that exist among physicians as to the infectivity of such cases.

When a patient with typical membranous diphtheria is isolated at home, a placard announcing the presence of the disease should, of course, be posted at each entrance. In latent cases, however, this placard might be omitted, provided strict isolation is maintained to the satisfaction of the health authorities.

Bacteriologic Tests required for Removal from Isolation.

If the isolation of either severe or mild cases of diphtheria is to be of practical value in preventing the spread of the disease, it must continue until the specific bacilli have permanently disappeared from the throat. The danger that an individual may be a focus of infection remains so long as he carries the germs about. The great variation in the persistence of these organisms makes the adoption of a time limit from the disappearance of the membrane, as practised in Providence, ineffectual in typical cases and impossible in latent forms. Although in most instances the bacilli disappear after from twenty-eight to thirty-six days, they have been known to persist for eighty-two, ninety-nine, one hundred and fifty-four and one hundred and sixty-seven days, for ten months and even for several years.

The only method of discovering whether or not the organisms have disappeared from the throat is by taking cultures. One culture alone, however, as shown by Graham-Smith and Wells, has not been found a sufficiently reliable index as to their complete disappearance.

As a result of their experiences Cobbett and Graham-Smith advise a minimum of three successive negative cultures before release from isolation. The health authorities of Philadelphia, Boston and many other cities, however, require but two. This seems a good working rule. I recommend, therefore, that in all cases of diphtheria, whether severe or latent, isolation should be maintained until two successive negative cultures shall have been obtained from the patient's throat.

Measures insuring the Recognition of Latent Diphtheria.

The control of known latent cases of diphtheria by the sanitary authorities, however, will not of itself sufficiently protect the public health. Quite as important is the recognition of the latent forms. These, it has been shown, are usually mistaken for cases of tonsilitis and pharyngitis, from which they can be differentiated only by means of cultural tests. Tonsilitis and pharyngitis should be included, therefore, among the diseases to be reported or "notified." When so reported, the physician should be requested to take a culture of the throat, and should be offered the services of the health department in case he does not desire to take the culture himself. Biggs believes that observations made by him, by the New York Health Department laboratories, and by Koplik and others are sufficiently conclusive in showing that when diphtheria bacilli typical in appearance are found in cultures obtained from cases of simple angina (cases in which there is no membrane) animal tests in a large majority of instances prove that the bacilli are fully virulent. Park and Beebe, and Wesbrook, Wilson and McDaniel, also declare it justifiable in such cases to assume that the bacilli are virulent and hence dangerous. On the finding of diphtheria-like bacilli, therefore, in a case of tonsilitis or pharyngitis, that case should be regarded as one of latent diphtheria and managed accordingly, unless the bacilli be shown by inoculation into guinea-pigs not to be virulent. The municipal laboratory should, however, be prepared to make tests for virulence when so requested by the attending physician.

In schools that are visited by a medical inspector much latent diphtheria would be discovered and removed as a source of contagion by enforcing the following regulations: a child in school with sore throat should be sent to the medical inspector, who should take a culture from the throat and then exclude the child. If the culture is reported negative, the child may be readmitted as soon as the throat is clear; but if bacteriologic examination discloses the presence of diphtheria-like organisms, the case should be regarded as one of diphtheria, unless inoculation tests show the bacilli to be non-virulent.

A child who has been absent from school on account of sore throat should not be permitted to return until a culture of the throat has been taken. When this has been neglected by the attending physician, it must be done by the medical inspector. If this first culture is negative, the child may at once resume attendance. If, however, it proves positive, the exclusion must be maintained until two successive negative cultures have been obtained. A similar regulation is now in force in London during diphtheria epidemics. The London County Council has recently adopted a recommendation from the education committee to the effect that, during the presence of diphtheria in any district, the committee should be authorized to refuse to admit to school children excluded on account of sore throat until they have obtained a medical certificate of freedom from infection based on bacteriologic examination. Such action, however, seems to me just as important between epidemics as during them, for the reports of Thorne and the medical officers quoted earlier in this paper show that antecedently and subsequently to outbreaks of diphtheria sore throat is very common, serving as the connecting link between diphtheria epidemics.

Terminal Disinfection.

Not only must latent forms of diphtheria be discovered and be subjected to municipal control, but in order to check the dissemination of diphtheria all the known avenues of contagion must be cut off whenever the disease appears, whether in severe or latent form.

The most commonly employed prophylactic measure in addition to isolation is terminal disinfection. As Chapin, Gorham and others have shown, however, fomites are of relatively minor importance as carriers of infection, and the evidence for the necessity of surface disinfection after diphtheria is very slight. Still, inasmuch as the presence of diphtheria bacilli has been demonstrated by Hill, Gorham and others, in a small percentage of infected objects, I think it wise to disinfect, with their contents, all rooms that have been occupied by a patient suffering from either severe or latent diphtheria. It should nevertheless be realized that this alone will have little effect in preventing the spread of the disease if no precautions are taken to prevent healthy persons with virulent bacilli on their mucous membranes from mingling with other people. Consequently, I believe that terminal disinfection should be postponed until all the members of the household have been shown by bacteriologic examination to be free from diphtheria bacilli.

The Control of Persons residing in the Same House with a Diphtheria Patient.

A difficult problem confronting the health authorities in their endeavors to limit the spread of the disease is the control of those who are in more or less intimate contact with the patient. The measures recommended by writers on hygiene and sanitation and those practised by the boards of health in this connection, seem, as a rule, to be based on the supposition that such persons carry the germs on their clothing and on the exposed skin surfaces. Thus, in some cities those living in an infected house are prevented from attending school or working at certain occupations, but they may resume their accustomed duties on residing elsewhere, provided they have taken a disinfectant bath and have had their clothing disinfected. Whoever comes in intimate contact with the patient is advised, while in the sick room, to wear a gown reaching from the neck to the floor and a cap covering the hair, and on leaving the room to disinfect the face and hands. In neither case is any attempt made to determine the presence or absence of diphtheria bacilli on the mucous membranes of those persons. Yet it is well known that healthy persons who have been in contact with diphtheria may carry the germs on their mucous membranes without becoming sick themselves, though they are capable of transmitting the disease to others. Such persons are known as "carrier" cases and infected "contacts." The germ-laden throats of the infected "contacts" constitute a far greater source of danger than do their garments. Persons residing in an infected house should be prohibited from attending school or from working at any employment in which they are brought in contact with other people or with articles of food, wearing apparel and the like, and from frequenting public places. But these restrictions should not be removed until bacteriologic examination has shown the absence of diphtheria bacilli on their mucous membranes. Yet whenever isolation is effectively maintained to the satisfaction of the health authorities I believe that the restrictions might be suspended in the case of those whose throats are shown by cultural tests to be free from the Klebs-Loeffler organism and remain free when examined at frequent stated intervals.

The method employed in Bristol, England, for finding out which of the inmates of an infected house are harboring diphtheria organisms is an excellent one. As soon as a case of diphtheria is reported or "notified" the physician in charge is requested to obtain cultures from the throats of all the inmates of the house, and is offered the services of the health bureau for that purpose.

I recommend the adoption of such a rule.

The measures I have advocated are stricter than those usually suggested. Welch, Park and Beebe and the Philadelphia Bureau of Health, however, regard members of an infected house as a source of more or less danger and impose certain restrictions, but Cobbett, Graham-Smith and the Massachusetts Association of Boards of Health object to causing any hardship to breadwinners.

That municipal control of infected "contacts" residing in an infected house is not, as objectors urge, impracticable is proved by the fact of its effective operation in many cities. The Bureau of Health of Philadelphia, for instance, excludes from work all inmates of houses in which diphtheria exists who are employed in the manufacture or sale of clothing, house furnishings or foodstuffs, whether breadwinners or not, and does not permit them to return to work until after the house has been disinfected and the placard removed, unless they change their places of residence and submit to other specified regulations for safeguarding the public health.

In institutions, such as orphanages and insane asylums, strict rules can and must be enforced in order to prevent an epidemic. Whenever a case of diphtheria, even of a latent form, occurs in an institution, cultures should be taken of the throats of all inmates, officers and employees, and all those giving positive cultures should be isolated until two negative cultures have been obtained successively.

The Control of Infected "Contacts" or "Carrier" Cases not residing in an Infected House.

It is recognized by all that many perfectly healthy individuals with normal throats harbor diphtheria bacilli; a still larger number are said to harbor the so-called pseudo-diphtheria bacilli. Consequently the control of "carrier" cases in which the infected individuals do not reside in an infected house presents many practical difficulties. The opinions of sanitarians differ greatly, not only as to the character of the municipal supervision required for such cases, but as to whether or not any control at all is desirable. This lack of unity is a consequence of the divergent views held by bacteriologists concerning the so-called pseudo-diphtheria bacilli.

The scientific world may be divided into two principal groups: first, the French school of bacteriologists and a few Americans, Englishmen and Germans insist that all these organisms are true Klebs-Loeffler bacilli. They discard the term pseudo-diphtheria bacilli, believing that the organisms so called are merely varieties of, or attenuated, or modified, diphtheria bacilli. Second, practically the whole German school, on the other hand, and the great majority of American and English bac-

teriologists consider the Hoffman or pseudo-diphtheria bacillus a completely different and distinct organism from the Klebs-Loeffler or true diphtheria bacillus. A number of this second group (Abbott, Bergey, De Martini, Gromakowski, Hamilton, Hewlett and Knight, Kurth, Lesieur, Park and Beebe, Veillon and Halle, and A. W. Williams) use the term "pseudo-diphtheria bacilli" to include a group of bacilli resembling, but distinct from, the Klebs-Loeffler organism, of which the Hoffman bacillus is merely one member.

Those believing in the existence of two distinct organisms see many points of difference between the Klebs-Loeffler bacillus and the so-called Hoffman bacillus. The bacteriologists, however, who insist on identity argue that the properties of the different forms of the diphtheria organism are unstable and varying, one form readily assuming the characteristics of another form. Among the points of difference given may be mentioned the morphologic appearance of the organisms, their appearance with Neisser's and with Gram's methods of staining, the appearance of their growth in bouillon and on solid media, their production of acid in glucose and in broth cultures, and their virulence when inoculated into guinea-pigs. Other tests are the agglutination test, fermentation tests in the serum-water media of His, animal inoculations controlled by antitoxin, vaccination against diphtheria, with the aid of pseudo-diphtheria bacilli, the power to hemolyze the rabbit's corpuscles, the bactericidal action of diphtheria antitoxin on diphtheria bacilli, and the application of specific sera to neutralize specific toxins. Some investigators claim that they have been able to increase and to decrease the virulence of diphtheria bacilli, to convert diphtheria bacilli into pseudo-diphtheria bacilli, and *vice versa*, and have noted the production of active toxins by the pseudo-diphtheria bacillus, and have established the identity of the toxins from the organisms. A difference of opinion, nevertheless, exists among laboratory workers concerning every method of differentiation suggested in which the attempt has been made to verify the findings of the original observer.

While in view of such a conflict of authorities the sanitarian will admit that academically the identity or separateness of the diphtheria and pseudo-diphtheria bacilli is an open question, in practice he must err, if at all, on the safe side. The measures he enforces must be such that the public health will be protected no matter which bacteriologic view is correct. At the same time he must be careful to avoid all restrictive regulations not justified by the facts or required by the necessities.

Many authorities, including the Massachusetts Association of Boards of Health, Parke and others, object to exercising any control at all over infected "contacts" or "carriers" not residing in an infected house.

They believe that healthy persons with diphtheria bacilli in their throats are not a source of danger to the community. Moreover, owing to the ubiquitousness of the diphtheria bacilli, they regard the bacteriologic examination of "contacts" and the isolation of those found infected as unjustifiable, impracticable and unfair. Variot declares that if the medical inspectors of the city of Paris separated from their companions all the children who have in the pharynx the different forms of pseudo Loeffler and Klebs-Loeffler bacilli they would risk depopulating the schools without sufficient reason. Consequently only general sanitary measures are advised.

According to this view, persons harboring diphtheria bacilli should be warned that they are a source of danger to others, instructed to take certain precautions, induced to use antiseptic mouth-washes and gargles, and kept under observation.

Other sanitarians, such as Abbott, Caiger, Cobbett, Dunham, McFarland and Babcock, Wesbrook and his associates, and others, on the contrary, regard a well individual with diphtheria germs in his throat as such a grave menace to the health of those with whom he comes in contact that they recommend his isolation. They believe that while such action unquestionably causes inconvenience to the individual, it is necessary for the general good.

I believe that the health authorities may properly disregard the presence of diphtheria-like bacilli in the throats of healthy persons who have not been in direct or indirect contact with a case of diphtheria, membranous or latent, and who have not themselves suffered recently from sore throat. It has been demonstrated by many investigators that virulent bacilli are seldom if ever present in the throats of healthy persons who have not been in contact with cases of diphtheria or with infected "contacts." The diphtheria-like bacilli found in healthy persons who have not been subjected to such contact are practically always non-virulent and such persons consequently are not a source of danger. Denny, Graham-Smith, Kober, and Park and Beebe examined a total of 1,511 persons with normal throats in whom there has been no possibility or probability of recent infection. Non-virulent diphtheria-like bacilli were found in 30 (1.98 per cent.), but in only 2 were virulent bacilli found. In 1 diphtheria bacilli were found which were not tested for virulence (a possible .19 per cent.). Biggs, Garratt and Washbourn, Hewlett and Murray, and the Massachusetts Association of Boards of Health examined altogether 3,374 healthy persons, but without making any inquiry as to the possibility of contact. Non-virulent diphtheria-like bacilli were found in 134 (3.9 per cent.), virulent diphtheria bacilli in but 9 (2 per cent.). Bacteriologists of both schools are thus in ac-

cord concerning a point of such great importance to the sanitarian. Gorham, Kober, the Massachusetts Association of Boards of Health, Pugh and Wesbrook, who regard all diphtheria-like bacilli as Klebs-Löffler organisms, and Biggs, Cobbett, Graham-Smith, Park and Beebe and P. W. Williams, who believe in the existence of a distinct Hoffman or pseudo-diphtheria bacillus, are all of the opinion that only a small percentage of the diphtheria bacilli found in well persons not recently exposed are virulent.

They believe, on the other hand, that when virulent diphtheria bacilli are present in the throats of healthy persons they have been derived, as a rule, either directly from cases of diphtheria or from individuals who have been in contact with such cases.

Conversely, it has been observed by Graham-Smith, Pugh and Williams that the diphtheria bacilli found in persons who had recently been in contact with the disease are usually virulent. It is my opinion, moreover, that in many instances where diphtheria bacilli are found in healthy throats the subjects are in reality convalescent from latent diphtheria. In a large number of my cases of latent diphtheria, for example, all signs of sore throat or other symptoms disappeared in one or two days, the patients then presenting the appearance of perfect health. Therefore, in regarding a person harboring diphtheria bacilli as healthy or normal, the possibility that such a one may be convalescing from a recent attack of latent diphtheria must be borne in mind.

When, therefore, healthy persons who have been exposed to diphtheria, although not residing in an infected house, are found to have diphtheria-like organisms in their throats they should be subjected to the same restrictions that govern infected "contacts" residing in the same house with a diphtheria patient. They should be excluded from work or school, and prevented from mingling with other people until free from the bacilli, as determined by two successive negative examinations. Such restrictions, however, should not be enforced in any case in which the organisms have been proven by inoculation tests to be non-virulent, although it is questionable whether or not the state or municipality should be put to the trouble or expense of making inoculation tests in the case of infected "contacts."

Detection and Isolation of Infected "Contacts" in School.

It will be impossible to detect all "carrier" cases in a community without making bacteriologic tests of every one.—an impracticable procedure in large cities. There are certain classes of intimate "contacts," however, who can be examined for the presence of diphtheria organisms.

Most writers are agreed that in a school culture should be taken of all "contacts," and those found to be infected should be excluded and isolated. By such means Cobbett stamped out epidemics in Cambridge and Colchester, Wesbrook and his assistants were able to check the spread of the disease in Minnesota, and O'Hara, an assistant medical inspector, practically rid two Philadelphia public schools of diphtheria which for months had been unduly prevalent there. When, therefore, diphtheria develops in a child who is attending school or who has been recently in attendance, cultures should be taken from the throats of all the pupils and of the teacher in that child's classroom. All persons who are found to harbor diphtheria bacilli must be excluded from school, and treated as infected "contacts" until they are shown by bacteriologic tests to be free of the germs.

Detection of Infected "Contacts" in Industrial Establishments.

I believe that many "carrier" cases become infected by fellow workers in the shop or mill. I strongly recommend, therefore, that when a case of diphtheria develops in an industrial establishment all those who were in more or less contact with the patient, certainly all who were in immediate contact, be examined bacteriologically. This method of procedure will not only cut off further avenues of contagion when followed by the exclusion and isolation of those found infected, but may often discover the source of the original clinical case.

Conclusions.

1. The prevalence of diphtheria is due to the lack of control over latent cases of diphtheria and over the so-called "carrier" cases.
2. Diphtheria may occur in a latent form without pseudo-membrane and with only slight symptoms.
3. Latent cases of diphtheria should be isolated until two successive negative cultures have been obtained.
4. All cases of sore throat should be reported to the health authorities and should be examined bacteriologically.
5. Infected "contacts" should be excluded from school or work and should not be permitted to frequent public places until two successive cultures have proved negative.
6. All who have been in contact with a diphtheria patient, whether at home, at school or at work, should be examined bacteriologically.
7. Disinfection of fomites and terminal disinfection of rooms and their contents is insufficient and reliance thereon treacherous. Animate carriers of infection are more dangerous than the inanimate.

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1907.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING SEPT 7, 1907.

CITIES AND TOWNS.	Population ¹ Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—						
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Pulisia.	Diphtheria.	Typhoid Fever.	Measles.	
Boston.	609,761	232	106	89	13	23	2	1	—	—
Worcester.	132,240	60	27	17	3	3	3	—	—	—
Fall River.	106,123	67	44	30	2	6	1	—	—	—
Cambridge.	98,745	26	13	11	1	3	1	—	—	—
Lowell.	96,380	32	16	10	—	3	—	—	—	—
Lynn.	80,743	20	7	4	—	2	1	—	—	—
New Bedford.	79,744	48	23	19	3	3	—	—	—	—
Springfield.	78,707	22	8	4	—	—	—	—	—	—
Lawrence.	76,000	27	17	9	4	—	—	—	—	—
Somerville.	72,581	13	3	3	—	—	—	—	—	—
Holyoke.	51,730	19	9	6	—	—	—	—	—	—
Brockton.	51,289	13	—	—	—	—	—	—	—	—
Malden.	39,941	10	—	—	—	—	—	—	—	—
Chelsea.	38,659	11	—	—	—	—	—	—	—	—
Salem.	38,316	21	—	—	—	—	—	—	—	—
Newton.	38,209	6	—	—	—	—	—	—	—	—
Haverhill.	38,095	8	1	—	—	—	—	—	—	—
Fitchburg.	33,636	—	—	—	—	—	—	—	—	—
Everett.	31,274	—	5	—	—	—	—	—	—	—
Taunton.	30,967	15	—	—	—	—	—	—	—	—
Quincy.	29,944	14	—	—	—	—	—	—	—	—
Waltham.	27,493	8	2	—	—	—	—	—	—	—
Pittsfield.	26,425	5	3	—	—	—	—	—	—	—
Gloucester.	26,011	8	4	—	—	—	—	—	—	—
Brookline.	25,003	—	1	—	—	—	—	—	—	—
North Adams.	22,150	—	—	—	—	—	—	—	—	—
Chicopee.	20,615	—	5	—	—	—	—	—	—	—
Northampton.	20,508	—	1	—	—	—	—	—	—	—
Medford.	20,294	10	3	1	—	—	—	—	—	—
Beverly.	15,794	—	—	—	—	—	—	—	—	—
Leominster.	15,139	5	2	—	—	—	—	—	—	—
Hyde Park.	15,050	—	—	—	—	—	—	—	—	—
Melrose.	14,887	—	0	—	—	—	—	—	—	—
Newburyport.	14,755	—	—	—	—	—	—	—	—	—
Woburn.	14,462	—	3	—	—	—	—	—	—	—
Marlborough.	14,266	—	1	—	—	—	—	—	—	—
Westfield.	14,169	—	—	—	—	—	—	—	—	—
Peabody.	13,787	—	—	—	—	—	—	—	—	—
Revere.	13,637	6	—	—	—	—	—	—	—	—
Attleborough.	13,294	3	—	—	—	—	—	—	—	—
Clinton.	13,105	5	—	—	—	—	—	—	—	—
Adams.	13,072	6	—	—	—	—	—	—	—	—
Gardner.	12,528	6	—	—	—	—	—	—	—	—
Milford.	12,409	—	—	—	—	—	—	—	—	—
Watertown.	11,948	1	1	—	—	—	—	—	—	—
Plymouth.	11,796	—	—	—	—	—	—	—	—	—
Weymouth.	11,691	4	1	—	—	—	—	—	—	—
Framingham.	11,643	4	—	—	—	—	—	—	—	—
Southbridge.	11,416	3	—	—	1	—	—	—	—	—
Wakefield.	10,687	—	—	—	—	—	—	—	—	—
Webster.	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,209,294	798	368	265	30	64	10	5	
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,000, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING SEPT. 14, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.	Malaria.
Boston,	609,761	201	83	64	14	21	2	2	2
Worcester,	132,240	41	17	9	1	2	1	2	1
Fall River,	106,123	46	31	25	1	2	-	-	-
Cambridge,	99,745	23	10	10	1	4	-	-	-
Lowell,	96,380	41	11	9	5	4	1	1	-
Lynn,	80,743	30	13	2	-	-	-	-	-
New Bedford,	79,744	34	20	18	1	3	1	1	-
Springfield,	78,707	23	4	2	-	-	-	-	-
Lawrence,	76,000	31	17	14	3	1	-	1	-
Somerville,	72,581	13	1	1	-	-	-	-	-
Holyoke,	51,730	15	9	6	2	-	-	-	-
Brockton,	51,289	15	5	1	-	-	-	-	-
Malden,	39,941	9	4	-	-	-	-	-	-
Chelsea,	38,659	15	7	1	-	-	-	-	-
Salem,	38,316	15	10	-	-	-	-	-	-
Newton,	38,209	16	6	2	-	-	-	-	-
Haverhill,	38,095	8	2	-	-	-	-	-	-
Fitchburg,	33,636	16	7	1	1	1	-	-	-
Everett,	31,274	13	10	-	-	-	-	-	-
Taunton,	30,967	17	6	7	2	1	-	2	-
Quincy,	29,944	7	2	3	-	-	-	-	-
Waltham,	27,493	9	3	3	-	2	-	1	-
Pittsfield,	26,425	4	-	-	-	-	-	-	-
Gloucester,	26,011	9	2	1	-	-	-	-	-
Brookline,	25,003	3	-	-	-	-	-	-	-
North Adams,	22,150	6	2	2	1	1	-	-	-
Chicopee,	20,615	7	6	5	-	-	-	2	-
Northampton,	20,508	6	1	-	-	-	-	-	-
Medford,	20,294	5	2	-	-	-	-	-	-
Beverly,	15,794	5	1	-	-	-	-	-	-
Leominster,	15,139	6	1	2	1	1	-	-	-
Hyde Park,	15,050	2	0	-	-	-	-	-	-
Melrose,	14,867	3	0	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	8	1	-	-	-	-	-	-
Marlborough,	14,263	-	-	-	-	-	-	-	-
Westfield,	14,169	2	1	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	3	-	1	1	-	1	-	-
Attleborough,	13,294	5	4	1	-	-	-	-	-
Clinton,	13,105	2	0	-	-	-	-	-	-
Adams,	13,072	7	5	1	-	-	-	-	1
Gardner,	12,528	1	-	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	0	-	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	3	0	1	-	-	1	-	-
Framingham,	11,648	5	4	3	-	-	1	-	-
Southbridge,	11,416	-	-	-	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, .	2,244,461	730	308	195	33	48	9	14	3
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WEEK ENDING SEPT. 21, 1907.

CITIES AND TOWNS.	Population—Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—						
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	217	76	55	15	21	4	1	1	
Worcester,	132,240	60	22	13	6	5	33	1	1	
Fall River,	106,123	46	29	23	7	2	1	1	1	
Cambridge,	99,745	25	11	6	3	5	—	—	—	
Lowell,	96,380	44	17	9	2	1	1	—	—	
Lynn,	80,743	29	11	2	—	—	—	—	—	
New Bedford,	79,744	35	16	15	2	1	—	—	2	
Springfield,	78,707	16	6	1	2	—	—	1	1	
Lawrence,	76,000	32	11	9	1	—	3	—	—	
Somerville,	72,581	15	3	5	—	—	—	1	1	
Holyoke,	51,730	22	15	10	4	1	—	—	—	
Brockton,	51,289	13	8	—	1	—	—	—	—	
Malden,	39,941	10	3	4	—	2	—	—	—	
Chelsea,	38,659	10	3	2	—	—	—	—	—	
Salem,	38,316	18	6	2	—	1	—	—	1	
Newton,	38,209	17	5	1	—	—	—	—	—	
Haverhill,	38,095	10	1	4	1	3	1	—	—	
Fitchburg,	33,636	11	5	1	1	1	—	—	—	
Everett,	31,274	9	2	1	—	1	—	—	—	
Taunton,	30,967	14	6	5	—	1	—	—	—	
Quincy,	29,944	9	5	4	—	1	—	—	—	
Waltham,	27,493	11	3	—	—	—	—	—	—	
Pittsfield,	26,425	8	2	2	—	—	2	—	—	
Gloucester,	26,011	5	2	2	—	—	—	—	—	
Brookline,	25,003	6	2	—	—	—	—	—	—	
North Adams,	22,150	8	0	1	1	—	—	—	—	
Chicopee,	20,615	8	7	3	1	—	—	—	—	
Northampton,	20,508	7	2	1	—	—	—	—	—	
Medford,	20,294	4	1	—	—	—	—	—	—	
Beverly,	15,794	4	—	—	1	—	—	—	—	
Leominster,	15,139	3	—	—	—	—	—	—	—	
Hyde Park,	15,050	6	2	2	—	1	—	—	—	
Melrose,	14,867	7	3	2	—	1	1	—	—	
Newburyport,	14,755	—	—	—	—	—	—	—	—	
Woburn,	14,462	4	3	2	—	—	—	—	—	
Marlborough,	14,263	8	4	2	1	—	—	—	—	
Westfield,	14,169	2	—	2	—	—	—	—	—	
Peabody,	13,787	—	—	—	—	—	—	—	—	
Revere,	13,697	2	1	—	—	—	—	—	—	
Attleborough,	13,294	5	3	2	—	2	—	—	—	
Clinton,	13,105	4	1	1	—	1	—	—	—	
Adams,	13,072	3	3	1	—	—	1	—	—	
Gardner,	12,528	—	—	—	—	—	—	—	—	
Milford,	12,409	—	—	—	—	—	—	—	—	
Watertown,	11,946	6	4	—	—	—	—	—	—	
Plymouth,	11,796	—	—	—	—	—	—	—	—	
Weymouth,	11,691	6	2	3	—	—	—	—	1	
Framingham,	11,648	7	3	1	—	—	—	—	—	
Southbridge,	11,416	9	7	6	—	—	—	—	—	
Wakefield,	10,687	—	—	—	—	—	—	—	—	
Webster,	10,549	—	—	—	—	—	—	—	—	

Recapitulation.

Total of reporting towns, .	2,246,196	795	316	203	51	62	15	12	-
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WEEK ENDING SEPT. 28, 1907.

CITIES AND TOWNS.	Population, estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	200	71	45	23	18	1	1	-
Worcester,	132,240	44	17	8	2	3	-	-	-
Fall River,	106,123	52	29	27	4	2	1	1	-
Cambridge,	99,745	23	12	8	-	3	-	-	-
Lowell,	96,380	39	21	10	7	3	-	-	-
Lynn,	80,743	23	6	3	-	3	-	-	-
New Bedford,	79,744	32	20	13	1	1	2	-	-
Springfield,	78,707	27	8	7	1	1	1	2	-
Lawrence,	76,000	20	10	7	-	3	-	-	-
Somerville,	72,581	19	5	6	2	2	-	-	-
Holyoke,	51,730	27	15	6	4	-	1	-	-
Brockton,	51,289	7	1	1	-	1	-	-	-
Malden,	39,941	8	4	2	-	2	-	-	-
Chelsea,	38,659	19	5	5	-	2	2	-	-
Salem,	38,316	15	6	2	-	2	-	-	-
Newton,	38,209	9	3	2	1	-	-	-	-
Haverhill,	38,095	15	2	4	3	2	-	2	-
Fitchburg,	33,636	-	-	-	-	-	-	-	-
Everett,	31,274	7	1	1	-	-	-	1	-
Taunton,	30,967	-	-	-	-	-	-	-	-
Quincy,	29,944	9	4	4	-	1	-	-	-
Waltham,	27,493	11	2	2	-	-	-	1	-
Pittsfield,	26,425	-	-	-	-	-	-	-	-
Gloucester,	26,011	3	1	-	-	-	-	-	-
Brookline,	25,003	4	1	-	-	-	-	-	-
North Adams,	22,150	7	2	2	-	-	-	-	-
Chicopee,	20,615	8	4	4	1	1	-	1	-
Northampton,	20,508	9	1	1	-	-	-	1	-
Medford,	20,294	3	2	1	-	-	-	-	-
Beverly,	15,794	5	1	-	-	-	-	-	-
Leominster,	15,139	4	3	-	-	-	-	-	-
Hyde Park,	15,050	5	2	1	-	-	-	-	-
Melrose,	14,867	3	2	2	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	3	1	-	-	-	-	-	-
Marlborough,	14,263	6	1	1	-	-	-	1	-
Westfield,	14,169	6	4	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	3	1	-	1	-	-	-	-
Attleborough,	13,294	1	0	1	-	1	-	-	-
Clinton,	13,105	1	1	-	-	-	-	-	-
Adams,	13,072	1	1	-	-	-	-	-	-
Gardner,	12,528	3	2	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	3	2	1	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	2	1	-	-	-	-	-	-
Framingham,	11,648	4	1	-	1	-	-	-	-
Southbridge,	11,416	2	-	2	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,167,696	692	276	179	51	49	9	10	-
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF SEPT. 7, 14, 21, and 28,
1907.

DISEASE.	Place.	WEEK ENDING—			
		Sept. 7.	Sept. 14.	Sept. 21.	Sept. 28.
Cerebro-spinal meningitis, .	Boston, . . .	1	1	-	1
	Brockton, . . .	1	-	-	-
	Fall River, . . .	-	1	-	-
	Framingham, . . .	-	-	1	-
	Gloucester, . . .	1	-	-	-
	Holyoke, . . .	-	-	-	2
	Lawrence, . . .	-	1	-	-
	Lowell, . . .	-	-	-	3
	Lynn, . . .	1	-	-	-
	New Bedford, . . .	-	1	-	-
Erysipelas,	Worcester, . . .	2	1	-	-
	Boston, . . .	1	1	-	-
	Somerville, . . .	-	-	-	1
	Waltham, . . .	-	-	-	1
Whooping cough,	Worcester, . . .	-	-	-	1
	Boston, . . .	-	-	1	-
	Cambridge, . . .	1	-	-	-
	Fall River, . . .	1	-	-	-
	New Bedford, . . .	-	-	-	1
	North Adams, . . .	-	1	-	-
Scarlet fever,	Pittsfield, . . .	1	-	-	-
	Boston, . . .	-	-	-	1
	Cambridge, . . .	-	1	-	-
	Chicopee, . . .	1	1	-	-
	Holyoke, . . .	-	1	-	-
	Taunton, . . .	1	-	-	-
	Woburn, . . .	-	-	1	-
Hydrophobia,	Worcester, . . .	-	-	1	-
	Framingham, . . .	-	-	1	-

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF SEPT.
7, 14, 21 and 28, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	Sept. 7.	Sept. 14.	Sept. 21.	Sept. 28.
Diphtheria,	117	144	167	157
Measles,	22	36	26	27
Scarlet fever,	80	95	89	123
Typhoid fever,	92	120	154	117
Phtisis,	84	94	132	120
Cerebro-spinal meningitis,	1	5	3	9
Whooping cough,	9	6	7	5
Malaria,	—	—	—	1
Smallpox,	—	—	—	1
Varicella,	2	3	6	2
Actinomycosis,	—	—	—	1
Leprosy,	1	—	—	—

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examination of food and drugs made by the State Board of Health during the month of September, 1907: —

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Baking powder,	1	—	1	Sausages,	9	—	9
Butter,	3	—	3	Tripe,	2	—	2
Canned foods,	5	—	5	Milk,	120	33	153
Cheese,	3	—	3	Drugs,	58	12	70
Cider,	1	—	1	Miscellaneous foods,	4	—	4
Cocoa,	2	—	2	Non-alcoholic drinks,	7	—	7
Coffee,	2	—	2	Pickles,	2	5	7
Confectionery,	1	—	1	Salad dressing,	1	—	1
Cream,	1	—	1	Spices,	8	—	8
Cream of tartar,	6	—	6	Table sauce,	2	—	2
Ext. of vanilla,	1	1	2	Tea,	1	—	1
Grape juice,	1	—	1	Vinegar,	7	—	7
Honey,	1	—	1	Wine,	2	—	2
Jam,	1	—	1				
Malt liquors,	2	—	2	Total,	258	52	310
Canned meats,	2	—	2				
Hamburg steak,	—	1	1				
Head cheese,	2	—	2				

The samples of drugs found to be adulterated were: oleum olivæ, spiritus eamphoræ, tinetur iodii and several proprietary preparations.

The cities and towns in which samples were collected were: Adams, Boston, Braintree, Cambridge, Dartmouth, Fall River, Foxborough, Hingham, Lawrence, Lowell, Lynn, Methuen, New Bedford, Newton, North Adams, Oak Bluffs, Somerville, Springfield, Taunton, Waltham, Watertown.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Ten convictions were secured during the month of September, 1907, for selling adulterated food and drugs and cocaine preparations, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Charles J. Fulton,	Cambridge,	Maltine with coca wine. ¹
2	Goanna Salemme, .	Newton,	Maple sugar. ²
3	Francis P DeLory,	Billerica,	Milk (total solids, 10.83).
4	William Healey, .	Provincetown,	Milk preserved with compound of boron.
5	Charles V. Swanton,	Methuen,	Milk (total solids, 5.67). ³
6	Charles V. Swanton,	Methuen,	Milk (total solids, 9.85). ³
7	Gregory Tomasetti,	Watertown,	Milk (total solids, 11.35). ^{1,3}
8	Elbridge D. Morrow,	Worcester,	Oleomargarine sold as butter.
9	George W. Carter,	Revere,	Standard Catarrh Cure.
10	Daniel Hirth, .	Watertown,	Spirit of camphor.

¹Appealed.

²75% Cane sugar.

³Watered.

Fines imposed, \$198.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR SEPTEMBER, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
6234 M	Mixed pickles,	Libby, McNeil & Libby, Chicago, Ill., . . .	Contained alum.
5232 M	Gherkins,	L. S. B. Delaney Drug Company, Lawrence, Mass., . . .	Contained alum.
6004	Vanilla extract,	C. H. & H. A. Lawton, New Bedford, Mass., . . .	Contained coumarin.
6151	Vanilla extract,	Harry Belin, Boston, Mass., . . .	Contained coumarin.
6149	Tincture of iodine,	E. E. Jenison, Waltham, Mass., . . .	Low in iodine.
6125	Tincture of iodine,	Harry Belin, Boston, Mass., . . .	Low in iodine.
9567 N	Spirit of camphor,	E. E. Jenison, Waltham, Mass., . . .	Low in camphor.
6218	Milk,	. . .	Solids 11.80 per cent.; contained a boron preservative.
6219	Milk,	. . .	Solids 11.24 per cent.; contained a boron preservative.
6220	Milk,	William Whitaker, Dartmouth, Mass., . . .	Solids 11.80 per cent.; contained a boron preservative.
6221	Milk,	. . .	Solids 10.50 per cent.; contained a boron preservative.
6222	Milk,	. . .	Solids 10.70 per cent.; contained a boron preservative.
6166	Milk,	. . .	Solids 10.24 per cent.; contained a boron preservative and added water.
6157	Milk,	. . .	Solids 11.14 per cent.; contained a boron preservative and added water.
6154	Milk,	Lewis D. Gifford, New Bedford, Mass., . . .	Solids 9.86 per cent.; contained added water.
6155	Milk,	. . .	Solids 10.80 per cent.; contained added water.

INSPECTION OF DAIRIES.

During the month of September, 1907, 214 dairies supplying milk for public sale in Massachusetts were examined. All but 31 of the number are situated in Maine, New York and Vermont. The Massachusetts dairies yielded the following data:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Blackstone,	25	—	—	25	100.00
Brookline,	2	—	—	2	100.00
Cambridge,	4	1	25.00	3	75.00

Total number of dairies examined (including those in Maine, New York and Vermont),	214
Number found to be free from objectionable conditions,	64
Number to which letters were sent,	150
Total number of conditions to which attention was called,	615
Percentage of dairies which passed inspection,	29.91

The name of the owner of the dairy found to be worthy of commendation follows:—

Cambridge.

Sullivan, John J.

MAINE DAIRIES.

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
North Berwick,	36	13	36.11	23	63.89
Wells,	4	3	75.00	1	25.00

Total number of Maine dairies examined,	40
Number found to be free from objectionable conditions,	16
Number to which letters were sent,	24
Total number of conditions to which attention was called,	94
Percentage of dairies which passed inspection,	40

NEW YORK DAIRIES.

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Buskirks,	26	13	50.00	13	50.00
Cambridge,	23	12	52.17	11	47.83
Eagle Bridge,	23	4	17.39	19	82.61
Hoosick,	5	-	-	5	100.00
Petersburg,	2	1	50.00	1	50.00
Schaghticoke,	18	7	38.89	11	61.11

Total number of New York dairies examined,	. . . . .	97
Number found to be free from objectionable conditions,	. . . . .	37
Number to which letters were sent,	. . . . .	60
Total number of conditions to which attention was called,	. . . . .	258
Percentage of dairies which passed inspection,	. . . . .	38.14

VERMONT DAIRIES.

PLACE.	Number examined	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Barnet,	6	1	16.67	5	83.33
Barton,	8	2	25.00	6	75.00
Brownington,	1	-	-	1	-
Burke,	6	2	33.33	4	66.67
Coventry,	7	3	42.86	4	57.14
Irasburg,	1	-	-	1	-
Newark,	1	-	-	1	-
St. Johnsbury,	5	1	20.00	4	80.00
Sutton,	11	1	9.09	10	90.91

Total number of Vermont dairies examined,	. . . . .	46
Number found to be free from objectionable conditions,	. . . . .	10
Number to which letters were sent,	. . . . .	36
Total number of conditions to which attention was called,	. . . . .	166
Percentage of dairies which passed inspection,	. . . . .	21.74

STREAM POLLUTION AND ITS PREVENTION.¹

By X. H. GOODNOUGH, *Chief Engineer of the Board.*

The various sources of stream pollution are so well known that it is unnecessary to describe them in any considerable detail to an association like this.

The effect of stream pollution, so far as the sanitary questions involved are concerned, may be considered from two points of view: (1) the use of the stream as a source of water supply; and (2) the influence of its condition on the health and comfort of those living in its neighborhood.

It is not the purpose of this paper to consider the pollution of streams and its prevention from the point of view of their use or sources of public water supply. While a great many cities and towns in this country obtain their water supplies directly from rivers draining populated areas, the danger of the use of such sources is now well understood, and the more progressive communities have already taken steps to guard against the injury to the public health that results from the use of such sources. The use of unpurified river waters for domestic purposes is rapidly passing, and the time is probably not far distant when such use shall have wholly ceased.

On the other hand, the problem of the prevention of stream pollution from the point of view of the health and comfort of those dwelling along our rivers is one which has as yet received, on the whole, comparatively little attention in this country.

The chief sources of stream pollution are, first, domestic sewage — the wastes from water-closets, bath-tubs, sinks, etc., in dwelling houses and other buildings, and, second, manufacturing wastes — the liquid wastes resulting from processes carried on in manufacturing establishments, prominent among which may be mentioned tanneries, woolen mills, paper mills and gas works, though there are many others.

All streams which drain populated areas are affected in a greater or less degree by the wastes of human life and industry, the effect of which may be said in general to be proportional to the density of the population within the watershed. This rule is subject to many exceptions, since it makes a great difference whether sewage is discharged into a stream directly or finds its way there only after passing through the soil. Manufacturing wastes also may greatly injure the condition of a

¹ Read in the section on hygiene and sanitary science of the American Medical Association, at the fifty-eighth annual session, held at Atlantic City, June, 1907.

stream affected but little by sewage, and such wastes are often the chief cause of trouble in the most seriously polluted streams.

In general, however, the rule is true, and consequently we find the worst trouble from stream pollution in densely populated regions, especially those in which a great amount of manufacturing is carried on. In this country the most serious cases of stream pollution are found in densely populated areas in the manufacturing States.

The literature of this subject is very extensive, especially in England, where the agitation for the prevention of stream pollution began some fifty years ago, at a time when conditions there had reached the stage where a commission on the sewerage of towns denounced it as an "evil of national urgency, requiring the earliest and most serious attention."

The agitation relative to the prevention of the pollution of streams in England was followed several years later by a similar agitation in this country, induced, perhaps, in part by the condition of the English streams, and the realizing sense of those who had examined the subject that we were traveling rapidly in the same direction, but chiefly by the evidently increasing pollution of our own rivers, especially in Massachusetts and in densely populated watersheds in other eastern States.

An investigation of the condition of the streams of Massachusetts, carried on by the State Board of Health in 1876, showed that at that time some of the streams had already become seriously polluted. No control over the streams was exercised by any one, all the waters at that time being left to the ordinary rules of common law, concerning which the board makes the following statement in its report of the year mentioned: —

Any defense against the impurities which so conveniently flow into our waters from the settlements and works on their banks has thus far been merely nominal; that is, the law can be used to prevent a nuisance from continuing to be poured into the river, but it is not used because the process is too slow, cumbersome and expensive.

Cities and towns at that time, as sewerage became necessary, discharged their sewage directly into the nearest stream or other convenient body of water, with entire disregard of possible consequences, while manufacturers used the streams as they pleased.

The condition of several of the streams was rapidly becoming intolerable, and the question of dealing with the pollution of streams was taken up by the Legislature, and committed to a special commission authorized to employ experts, who entered on their work in 1884 and reported to the Legislature in 1886.

This commission, after a thorough investigation and a consideration

of various plans of controlling the inland waters of the State, recommended the appointment or designation of a commission to have a general oversight and care of the inland waters of the State, with power to advise cities and towns, manufacturers and others as to the disposal of their sewage and wastes, with a view to the protection of the public interests. Their conclusions and recommendations with reference to the duties of this proposed commission were, in part, as follows:—

Let these guardians of inland waters be charged to acquaint themselves with the actual condition of all waters within the State as respects their pollution or purity, and to inform themselves particularly as to the relation which that condition bears to the health and well-being of any part of the people of the Commonwealth. Let them do away, as far as possible, with all remediable pollution, and use every means in their power to prevent further vitiation. Let them make it their business to advise and assist cities or towns desiring a supply of water or a system of sewerage. They shall put themselves at the disposal of manufacturers and others using rivers, streams or ponds, or in any way misusing them, to suggest the best means of minimizing the amount of dirt in their effluent, and to experiment on methods of reducing or avoiding pollution. They shall warn the persistent violator of all reasonable regulation in the management of water, of the consequences of his acts. In a word, it shall be their especial function to guard the public interest and the public health in its relation with water, whether pure or defiled, with the ultimate hope, which must never be abandoned, that sooner or later ways may be found to redeem and preserve all the waters of the State. We propose to clothe the Board with no other power than the power to examine, advise and report, except in cases of violation of the statutes. Such cases, if persisted in after notice, are to be referred to the Attorney-General for action. Other than this, its decisions must look for their sanction to their own intrinsic sense and soundness. Its last protest against wilful and obstinate defilement will be to the General Court. To that tribunal it shall report all the facts, leaving to its supreme discretion the final disposition of such offenders. If such a board be able to commend itself by its conduct to the approval of the great court of public opinion, it will have no difficulty, we think, in materially reducing the disorders and abuses which are threatening to give great trouble in future if not speedily checked. If, however, we err in this expectation, and more drastic measures prove indispensable, the mandate of the State can always be invoked to re-enforce its advice.

The Legislature, acting on the advice of the commission, in 1886 passed a law embodying practically these conclusions, and committed its enforcement to the State Board of Health, reorganized for the purpose, and two years later strengthened the law in a considerable degree by providing that all petitions to the Legislature for authority to intro-

duce a system of water supply, sewerage or drainage should be accompanied by the advice and recommendation of the State Board of Health thereon.

The same Legislature that passed the first law relative to the prevention of the pollution of streams was called on to take action relative to one of the streams of the State, the Blackstone River, which had already become so grossly polluted as to be a public nuisance; and a law was enacted directing the city of Worcester, within four years from the passage of the act, to purify its sewage before discharging it into the river. The four years ended in June, 1890. Five years later — that is, in 1895 — the aid of the court was invoked to carry out the law, and an order was made by the court in 1896 directing the further purification of the sewage of the city. Ten years after that decision — or in 1906 — the matter has again reached the courts, and a further order is asked for by those who dwell in the valley of the river and suffer from its offensive condition. Thus, after more than twenty years have elapsed since the law directing the removal of Worcester sewage from the Blackstone River was passed by the Legislature, the nuisance caused by the pollution of that stream is as bad as ever.

This example of an attempt to effect the purification of a river after it has once become grossly polluted shows how slow the process may be in some cases.

Returning to the report of the commission of 1886, it will be seen that it recommended the granting of advisory rather than mandatory powers to the Board that was to have charge of the protection of inland waters. This was especially essential in a State like Massachusetts, where manufacturing from the earliest years had been steadily favored by the law-making power, and the streams and unnavigable waters had been, as the commission states in its report, substantially dedicated to manufacturing uses. The results, however, have shown the wisdom of this recommendation.

The carrying out of the work was committed to a board composed of physicians, lawyers, engineers and business men, who have served without pay.

The Board from the beginning examined each application for advice with reference to water supply, sewerage or sewage disposal, or other questions brought to its attention under the act, with the greatest care, with the advice and assistance of the ablest engineers, chemists and biologists obtainable, and who were not authorized to do similar work within the limits of the State. They began at once to make a systematic chemical examination of all of the various rivers at such points as would show most clearly their condition, and collected statistics as to the sources

of pollution of each stream, reporting the results from time to time to the Legislature.

While all cities, towns and individuals intending to introduce new systems of water supply, drainage or sewerage were required by law to submit their plans for the advice of the State Board of Health, they were not required to follow that advice. It is interesting, under the circumstances, to note that practically from the beginning none cared to let that advice pass unheeded. The advice of the Board has operated in effect as an order, and one of its great advantages has been that it preceded any other action, except the preparation of plans.

In the beginning of the enforcement of the law the Board found that cities, towns and factories were already discharging sewage and wastes with the greatest freedom into the rivers and other inland waters, and many of the streams of the State had already become seriously polluted.

There is no doubt that a stream or river of considerable size may receive a considerable quantity of sewage without objection if it is not used as a source of water supply, and, in carrying out the law relative to the prevention of stream pollution in Massachusetts, cases were found in which such disposal of sewage or manufacturing waste would not be objectionable, for the time being, at least. Under such circumstances the disposal of sewage into streams has been advised in some cases; but such disposal has been carefully guarded by a time limit, whereby the use of the stream as a place of sewage disposal might be terminated whenever it should seem necessary or desirable to do so.

Moreover, in all such cases it has been the practice to determine first the best practicable plan of purifying the sewage of the city or town before authorizing its disposal into a stream, in order that the change from the latter method of purification might be made with the least possible trouble and expense. As a further saving in the ultimate cost of sewage disposal works, the board has advised in all new systems of sewers the keeping of the sewage and storm water wholly separate, admitting to the sewers only such wastes as were liable to create offensive conditions when discharged into the streams, and keeping roof water and other surface and ground drainage wholly out of them. The insistence on the separate system of sewers has been of the greatest advantage in all cases where subsequent purification of the sewage has become necessary.

In all the laws affecting the pollution of streams in Massachusetts the Legislature has made two notable exceptions, viz., the Connecticut and Merrimack rivers, the largest streams in the State, each of which receives much pollution before entering its limits. They are still, however, capable of receiving and properly disposing of a larger quantity of sewage than

they now receive, and will probably continue, for the present at least, to be excluded from laws relating to the pollution of streams. In the case of the other streams, the dividing line between the condition where it is permissible to discharge sewage into the stream and the condition wherein such discharge is likely to be objectionable is, of course, uncertain, and each case has to be judged on its merits.

In general, the discharge of sewage into a stream is unlikely to be objectionable if the flow of the stream during the driest periods amounts to as much as 6 cubic feet per 1,000 persons in the town to be sewered. Even a smaller dilution may not be objectionable in some cases, where the stream is unaffected by other wastes. On the other hand, an allowance must necessarily be made in most cases for the growth of the town and an increase in the quantity of sewage; and it is not usually desirable to allow the discharge of sewage into a stream at all unless the dilution is somewhat greater than the amount indicated. Other conditions also may have a material and perhaps a decisive influence in determining whether the sewage of a given town may be discharged into a stream or not.

The total number of inland towns in Massachusetts having sewerage systems at the present time is 60. Fourteen of these discharge their sewage directly into the Connecticut and Merrimack rivers, or into tributaries of these streams at their points of confluence. Of the remaining cities and towns, 25 now purify their sewage and discharge only the purified effluent into the streams, while 21 continue to discharge their sewage into the streams without purification. Of these 21 cities and towns which are now discharging their sewage untreated into inland waters, exclusive of the Connecticut and Merrimack rivers, about one-third are doing so under the authority of the advice of the State Board of Health, which limits the time within which such discharge can continue, and the remaining 14 represent the number of cities and towns whose systems were in existence previous to the passage of the law relative to the pollution of streams, and whose privilege has not since been modified.

In more recent years, while the advisory policy with reference to the control by the State over its inland waters has been continued, this policy has been materially strengthened by inserting in each new act passed by the Legislature authorizing the introduction or modification of systems of water supply, drainage or sewerage, a clause requiring the approval of the plans by the State Board of Health.

As a result of the legislation of 1886 and the subsequent acts strengthening that legislation, the pollution of streams by the sewage of cities and towns has been arrested, and progress has been made in reclaiming

from pollution some of the streams which had already become seriously injured at the time the act was passed. There still remain, however, several cases of serious stream pollution in Massachusetts by the sewage of cities and towns, most of which, however, are already in process of removal.

In dealing with the pollution of streams in Massachusetts, one of the most serious problems presented has been that of the Neponset River, a stream which has been grossly polluted almost wholly by wastes from manufacturing processes in tanneries, paper mills, woolen mills, gas works, etc. All, or practically all, of these establishments were in existence at the time the laws relating to the pollution of streams were passed; in fact, in many cases these manufactoryes had been in operation for many years.

In this case the question of preventing the nuisance caused by the stream was brought to the attention of the Legislature, which directed the State Board of Health to investigate the causes and recommend measures for preventing the trouble. The question was complicated by a question of the drainage of extensive marsh lands along the stream, and the whole matter was the subject of consideration by the Legislature for five successive years before action was finally taken. The law then passed did not prove strong enough to secure satisfactory results, and after four years of trial a law was finally passed requiring the purification of the manufacturing wastes by all persons discharging such wastes into the stream or any of its tributaries, under penalty of a heavy fine for neglect to observe its provisions. Under this act, which was passed last year, manufacturers have quickly taken steps to prevent their wastes from creating further offense in the stream.

It is important, before closing, to call attention to one other and most essential factor in carrying out successfully the work of preventing the further pollution of streams in Massachusetts, and recovering the ground which had already been lost there when this work was first undertaken, and that is the provision made by the Legislature which authorized the State Board of Health to make experiments on the purification of sewage and manufacturing wastes, so that the Board might be in a position to advise cities, towns and manufacturers as to the most appropriate and satisfactory methods of disposal or purification of such wastes.

Very soon after the passage of the law an experiment station was established by the Board at Lawrence, and experiments have been made there continuously for the last twenty years on the purification and disposal of sewage, and of all kinds of manufacturing wastes, beside the work done there in the purification of water and in other investiga-

tions in connection with the work of the Board on this and similar subjects.

At this experiment station were made the first systematic investigations on the purification of sewage on a practical scale, the results of which have been the basis of the advice of the Board in dealing with problems relating to the prevention of the pollution of streams.

The results of these experiments and investigations need not be considered here, further than to state that they have stood the test of many years in the purification of the sewage or other wastes of a large number of cities, towns and manufacturing establishments.

FILTRATION OF PUBLIC WATER SUPPLIES.¹

By HARRY W. CLARK, *Chemist of the Board.*

The purification of municipal water supplies by filtration has been practiced for over seventy years. Apparently the first filter of considerable size was that constructed by the city of London in 1829, and that city now has about 120 acres of sand filter beds. Berlin, Germany, built water works and sand filters in 1856, fifty years ago, and at the present time practically all the important cities of Great Britain and Germany filter their water supply if this water is taken from a surface source. Filtration of public supplies is widely practiced in other countries, especially Belgium and Holland. Even Russia has several large municipal filters. A recent article in the "Engineering Record" describes large sand filtration plants in Japan, while in India and Egypt a number of large municipal supplies are treated by mechanical filters.

The first large municipal filter in America was constructed at Lawrence, Mass., in 1892-93, although at Poughkeepsie and Hudson, N. Y., St. Johnsbury, Vt., and Nantucket, Mass., small filters had been previously built, the first one being that at Poughkeepsie, N. Y., constructed in 1872. During the last half of the last century public water supplies in America increased greatly in number, but perhaps the true beginning of the modern desire for pure water in this country, in distinction from the desire for enough water, was given by the State Board of Health of Massachusetts in 1886, when systematic examinations of the water supplies of the State were begun, frequent analyses of these supplies made and the Lawrence Experiment Station established.

Filtration of water is resorted to for various causes: to remove disease germs and render a polluted water safe, to remove undesirable organic

¹ Read in the section on hygiene and sanitary science of the American Medical Association, at the fifty-eighth annual session, held at Atlantic City, June, 1907.

or mineral matter present in suspension in water and thus improve its appearance, to remove color, and to remove tastes and odors and the organisms causing these tastes and odors.

The first municipal filters were constructed for the purpose of improving the appearance of public supplies, and for many years the removal of organic and mineral matter in suspension in the water was believed to be the chief benefit of filtration. Studies showing the efficiency of sand filters in removing bacteria from water were begun in Berlin in 1884, and since that date the water supply of the city of Berlin has been systematically examined bacterially, and since 1888 constant bacterial examinations of the water supplies of London have been made. In 1887 the Massachusetts State Board of Health began at the Lawrence Experiment Station its investigations on the filtration of water and the purification of sewage, and since then notable studies of the science of water filtration have been made by various municipalities in this country. At Lawrence the studies for many years were directed entirely to what is known as slow sand filtration, but of late years other methods have been studied at Lawrence, and mechanical and other forms of water filters have been operated. The improvement of water by double filtration has also been extensively studied there.

The municipal studies in America have been directed almost entirely to determining the comparative efficiency and applicability of sand and mechanical filters in the treatment of the various kinds of water necessary to use in various sections of the country, together with studies of sedimentation, coagulation by different coagulants, etc. In the Lawrence studies more than seventy-five experimental water filters have been kept in operation for periods varying from a few months to fourteen years, and with the laboratory facilities of the station almost every conceivable determination of the efficiency of these filters has been made. Daily determinations of the bacteria in the raw and filtered water, and chemical analyses to show the work of the filters in removing color, organic matter, etc., have been made: the effect on filter efficiency of different rates of operation, different depths of filter and filter efficiency when treating different waters have all been exhaustively studied, and the results given from year to year in the Lawrence Experiment Station reports.

Since the Lawrence filter was built, in 1893, sand filters have been constructed at Mt. Vernon, Albany, Providence, Philadelphia, Washington, Yonkers, New Haven, Springfield, Bar Harbor and other places, and such filters are in process of construction at Pittsburg, Pa., Cincinnati, O., and South Norwalk, Conn. Investigations are also under way looking to the filtration of the old and new water supplies of the city of New York.

Mechanical filters began to be extensively used in America, especially throughout the south and west, in the latter part of the '80s, largely, however, for the purpose of clarifying river water rather than for bacterial purification. In 1904 it was estimated by Hazen that 560,000 people in America were supplied with sand-filtered water and 3,000,000 with water treated by mechanical filters. In the past three years, owing to the introduction of sand filters at Washington, Philadelphia, Providence and other places, the number of people supplied with sand-filtered water has more than tripled, so that at the present time about 2,000,000 people in this country are so supplied.

The government has recently constructed covered sand filters of 29 acres in area at Washington, these filters having a capacity of 75,000,000 gallons daily. Filter beds 22 acres in area, supplying 288,000 people, have recently been constructed in Philadelphia, and 50 acres are in course of construction: while at Pittsburg 46 acres of filter beds, to supply a population of 400,000 are being constructed, and will be completed probably during 1908. The introduction of mechanical filters constructed on a scientific basis has also gone forward with great rapidity during the past few years, and probably 1,000,000 more people are supplied with water purified in this way than were supplied in 1904. The filters at Little Falls and Hackensack, N. J., are the largest of this type of filter yet constructed.

A sand filter is a very simply constructed affair. It is in its essential features merely a body of sand of sufficient thickness, underlaid or supported on a few inches of coarse and fine gravel or broken stone, with a proper number of pipe underdrains to collect the water that passes down through the sand, the filtering material enclosed by a suitably constructed concrete masonry basin with tight bottom and sides, and in the northern States covered with a roof. These are its essential features of construction, but the details can be varied through wide limits and by the engineering skill of those engaged in planning and building filters: they are being constantly improved, these improvements tending to simplify filter operation, to promote constant efficiency and to reduce the cost of filtration.

Such sand as that in the Lawrence filter will, when first placed in position, allow 50,000,000 gallons of water daily to flow through 1 acre of surface area: such sand as in the Albany filter will, theoretically, allow under the same conditions about twice as much water to pass through. As the sand remains in position and in constant use, however, it becomes compacted, and its maximum rate decreases very materially, so that under the same conditions of head, free underdrains, clean surface, etc., the maximum rate of the filter may be only one-half

or one-fourth as great as when first put in use. During the past two or three winters the volume of water that could be made to pass through the Lawrence municipal filter decreased so materially, owing to compactness of the sand, due to use and continued water pressure, that it has been a serious problem to filter a volume sufficient for the city's needs. An experimental filter at the experiment station, of the same grade of sand as in the municipal filter and of the same age of operation, has shown similar results as to decreased capacity to flow.

The maximum rate at which a filter may be operated has little connection, however, with the actual rate necessary for bacterial efficiency. In Germany the official rate of filtration recognized by the imperial board of health is 2,570,000 gallons per acre daily. The experiments at Lawrence and elsewhere in this country, however, have shown what common sense would tell us, that the rate of filtration may vary very materially with the character and degree of pollution of the raw water. Lawrence experiments make it clear that under careful supervision badly polluted water can be filtered at rates as high as 3,000,000 to 4,000,000 gallons per acre daily with entirely satisfactory results, and that with ordinary river and reservoir waters, not grossly polluted, rates of 5,000,000 gallons per acre daily can be safely followed. A sand filter containing from $3\frac{1}{2}$ to 5 feet in depth of suitable sand, and filtering polluted water at the rates mentioned, is capable, under proper conditions of filtration and skilled operation, of removing 99 per cent. or more of the bacteria present in the applied water, and a considerably larger percentage of the bacteria of intestinal origin present in such water.

For nineteen years experimental sand filters have been in operation at the Lawrence Experiment Station. For fourteen years the Lawrence municipal filter has been in use, and the Albany filter plant since 1899. Daily records of the bacterial efficiency of the Lawrence filter and the Albany filter show that by proper supervision a thoroughly satisfactory effluent, from a bacterial point of view, can be obtained at the rates followed at these places. Constant chemical analyses show, moreover, that organic matter can be reduced about 50 per cent. and coloring matter from 20 to 40 per cent. when filtering such river water as passes to these two filters. It has been found that not once has the average yearly efficiency of the Lawrence filter fallen below 98.5 per cent., and that during the past eight years it has been about 99.5 per cent. The Albany figures on the table show a similar result.

In the operation of sand filters a certain amount of sand clogged with organic and mineral matter has to be removed from the surface every little while in order that the filter may be kept in operation, and

the required rate of filtration and volume of filtered water be obtained. At Albany the period between scrapings averages about twenty-five days, and at Lawrence practically the same period elapses. At each scraping about one-half inch of clogged sand is removed, although when the laborers employed in this work are skilful a lesser depth is taken away at each scraping, the depth that must be removed varying, of course, with the character of the matter in and removed from the raw water. For example, the Potomac river water, passing to Washington filters, contains fine clay particles that penetrate to a considerable depth below the surface, and cause deeper sand removal than necessary at Lawrence or at Albany, while a filter receiving lake water free from turbidity would need even less sand removal than the Lawrence and Albany filters. The sand removed is subsequently washed and replaced. Replacement of sand is usually carried out once or twice each year, and at this time the filters are filled to grade with new or washed sand. At the present time sand is removed from filter beds by water pressure, that is, a movable hopper connected with pipe or hose is placed on the filter and moved about from place to place, and the sand that has been scraped from the filter surface and heaped up is shoveled into it. A stream of water passes through the bottom of this hopper, carries the sand into a pipe and through this to the washing area.

According to Lawrence and Albany figures, the cost of filtration, exclusive of interest on plant, is about \$1.50 per million gallons of water filtered. This includes scraping, ejection of sand, washing of sand, replacement of sand and general care of the filter beds. At Washington, by improved methods and machinery, the cost is stated to be only about one-third of this, or 50 cents per million gallons. Including interest on cost of plant and depreciation, the cost of sand-filtered water averages about \$10 per million gallons filtered.

The first scientific work in this country on water filtration was that in Massachusetts, where the comparatively clear river water of the eastern States was experimented with. It was found that such waters, polluted by considerable amounts of organic matter, and containing the dangerous bacteria from the sewage of cities along their course, could be successfully and comparatively cheaply treated by sand filtration. When the studies were begun at Louisville, Cincinnati and elsewhere on the turbid waters of the central and western States, carrying at times of flood large amounts of clay and silt in suspension, it was found that sand filters were but poorly adapted to the filtration of these turbid waters without extensive preliminary treatments of such waters. Bacterially they could be made about as efficient as in the east, but owing to the large amount of matter in suspension in these

waters and the fineness of many of the particles of this matter, and filters would quickly clog, and the effluents produced were not of a satisfactory quality as regards freedom from matters in suspension. It was also found that it was not economical, even with mechanical filters, to treat the western river waters directly, but that large sedimentation basins, capable of holding from one to many days' supply of water, were necessary, and the addition of coagulants in different amounts at different times before filtration, varying with the character of the water treated. It was found, however, that a purification system suitably planned, consisting of sedimentation basins, apparatus for the introduction of coagulants and properly constructed mechanical filters, was capable not only of producing satisfactory effluents from a bacterial point of view, but also effluents of a satisfactory clearness and freedom from color.

The simplest form of mechanical filter, used in paper mills and elsewhere where a clarified water is desired, is a large wooden tub with a couple of feet of sand in its bottom over underdrains and strainers, and supplied with mechanical devices by which the sand can be agitated and washed in position by reversing the current of water and passing it up through the sand. In connection with such filters in mills a coagulant, such as sulphate of alumina, is often used, but often also the water is simply strained by the sand at a very high rate, without the use of a coagulant. Early forms of mechanical filters employed such filtering materials as charcoal, coke, etc., and water was in some instances passed through under pressure from the city mains. The coagulant sulphate of alumina, when introduced into an alkaline water, decomposes, and the gelatinous hydrate of alumina is formed, which gathers in aggregates the organic matter, suspended mineral water and bacteria of the raw water, and, by the formation of these aggregates and their subsequent entanglement and collection at the filter surface, forms a most excellent body for the retention of bacteria and organic matter. By the use of a coagulant and this formation, and the use of coarse sand, rates of 75,000,000 to 125,000,000 gallons per acre daily can be maintained.

From the first crude type of mechanical filter, through the experience of those engaged commercially in installing filter plants, and also as a result of the able investigations carried on at Louisville, Pittsburg, Cincinnati and other places by experts in water purification, a new type of filter has been evolved. This new type is a combination of a mechanical and sand filter, although, of course, much nearer the mechanical filter form. The chief change, however, as typified by those recently constructed, is that it is built of practically indestructible materials,

concrete or reinforced concrete, instead of the perishable wooden forms formerly employed. The sand beds are considerably larger than the old wooden tub mechanical filters, but still small compared with the beds of slow sand filters. Improved devices for the even passage and collection of water after passing through the sand have been devised, and also better and more efficient methods of washing the sand. Filters of this new and improved type have been installed at Little Falls and Hackensack, N. J., at Ithaca and Watertown, N. Y., Lorisville, Ky., Harrisburg, Pa., and are being planned for other places.

At Little Falls, N. J., the first large plant of this new and improved type was constructed and put into operation in 1902. This plant is designed to have a capacity of 32,000,000 gallons daily, and covers a total area of only about $1\frac{1}{4}$ acres. It has 32 individual filter beds of 360 square feet each, a coagulating and subsiding basin with a capacity of 1,750,000 gallons, and a clear water basin of 3,500,000 gallons capacity. The filters are constructed above the clear water basin. The water filtered is taken from the Passaic River, and is a water somewhat dirty in appearance, not highly polluted, but unsatisfactory for domestic use on account of its appearance and the matters in suspension in it.

Sulphate of alumina is used as a coagulant, in amounts averaging about 1.3 grains per gallon, and in order to supply sufficient alkalinity to cause good decomposition and coagulation, and prevent the passage of undecomposed alum into the effluent, soda ash is used in amounts averaging about $\frac{1}{2}$ grain per gallon. These filters contain $2\frac{1}{2}$ feet in depth of sand of an effective size varying from .35 to .40 mm., placed over fine gravel or broken quartz, and this resting on the filter floors in which are inserted the strainers. In washing the sand in these filters, water is passed up from below and the sand agitated by compressed air, instead of by the stirring rakes formerly employed. The dirty wash water flows away through the inlet pipe, to which a branch is attached leading into the sewer. The rate of filtration employed is 125,000,000 gallons per acre daily. This filter removes more than 98 per cent. of the bacteria in the applied water, about 85 per cent. of the coloring matter, about 40 per cent. of the organic matter determined as albuminoid ammonia, and a much greater percentage of the total organic matter. It lowers the temporary but increases the permanent hardness of this water about 40 per cent.

When a slow sand filter is first put into operation the water comes through almost unchanged, and before good filtration—that is, good bacterial efficiency—can be obtained, the sand grains, especially those near the surface of the filter, must be covered with films of organic matter and this organic matter be filled with the bacterial life which

is capable of entangling and destroying the ordinary water bacteria and disease germs present in the raw water. That is, sand filtration is not entirely mechanical straining, but largely a bacterial process of water purification.

With the ordinary New England waters several weeks are necessary for this process of biologic construction to be established. With a clear water containing a little matter in suspension, a longer period even is necessary and finer sand in the filter is of advantage. When the filter has by this biologic construction become a proper medium for the efficient filtration of water, it not only removes bacteria but also improves the appearance of the water. It will also remove from ordinary river and pond waters a large part of the odor and tastes present in these waters. At the low rates at which sand filters are operated, this biological purification is the efficient agent by which disease germs and organic matter are removed. In mechanical filtration where rates thirty to fifty times as great as ordinary sand filter rates are used, this natural purifying agency is much less efficient, and the removal of bacteria depends very largely on the coagulant used, and the flocculent precipitate formed by it, which entangles the bacteria. In sand filters, at a 3,000,000 gallon per acre per day rate, the water passes downward through the sand at a rate of about 4.5 inches in depth per hour, but in mechanical filters, operated at a rate of 120,000,000 gallons per acre daily, the water passes downward at a rate of practically 180 inches per hour.

I have stated that the actual cost of operation at Lawrence and Albany is about \$1.50 per million gallons filtered. I understand that at Little Falls, N. J., it amounts to slightly more than \$3 per million gallons filtered, exclusive of cost of filtered water used in washing the filters, and the water used in this way amounts to about 4 per cent. of the total effluent.

In connection with this, however, it must be stated that, while the operation of mechanical filters in which coagulants are used is more expensive per million gallons filtered than sand filtration, yet when the smaller cost of the mechanical filter plant is taken into consideration, the actual cost of each method of filtration, including interest on plant, etc., is ordinarily about the same per million gallons of filtered water obtained.

The efficiency of a mechanical filter depends almost entirely on invariably applying a correct amount of coagulant for the water being treated, however much it may vary from hour to hour, and in a suitable period for the decomposition of the chemical coagulant, and for sedimentation before the water passes to the filter. In slow sand filtra-

tion the changes of the water and the personal equation are not such important factors, as the sand filter, operating at a low rate, adapts itself more readily to changes in the character of the raw water, receives no coagulant, and its efficiency rests on natural rather than chemical means. It is, of course, true that on this account a slow sand filter is more easily worked by unskilled hands and better results obtained than when a mechanical filter is operated by those insufficiently trained to appreciate the necessity of constant care and attention. This gives a certain percentage of safety to the slow sand filter. A decrease of filter efficiency, even for a few minutes, may, of course, be of serious moment when treating a polluted water, and especially if these few minutes occur several times in the course of a day or of a week. It is the aim at the present time of those planning mechanical filters of the modified type, used for the purification of public supplies, to so construct them that failures are almost impossible. Constant examination of the raw water and effluent is also insisted on. It is undoubtedly true that, with expert supervision, a mechanical filter of the latest design is capable of giving a bacterial efficiency nearly equal to, but probably not quite as great, as that obtained by sand filters. Whether this very slight difference in efficiency is of any hygienic importance or not yet remains to be demonstrated.

I have collected some data bearing on this phase of the water filtration problem, the results covering thirteen different experimental filters and two large filtration systems. In every case the period that I have selected for comparison of these filters has been such that each, as far as I can determine, was being operated under normal conditions, and all analytical results obtained during this period are included in this comparison. From the figures obtained it will readily be seen that the efficiency of all these filters was at times lower than the normal and desired efficiency. Taking the results of the two types of filters collectively, the slow sand filters had an efficiency of over 99 per cent. 42 per cent. of the time, of over 98 per cent. 64 per cent. of the time, and below 95 per cent. 13 per cent. of the time; while the mechanical filters had an efficiency of over 99 per cent. 32 per cent. of the time, of over 98 per cent. 49 per cent. of the time, and less than 95 per cent. 28 per cent. of the time. The filters used in this comparison are the Lawrence city filter, the Little Falls filter, and experimental mechanical and sand filters at Lawrence, Washington, Cincinnati, Pittsburgh and New Orleans.

Finally, the chief test of the efficiency and value of filtration is the effect that filtered water has on the health of a community using such water, compared with the health of the same community when using polluted

water before the introduction of filters, or, of course, it can be shown also by comparison between communities using purified water and those still using polluted water. Unfortunately, few results are obtainable showing the direct effect on the health of a city of mechanically or chemically filtered water, while we have, on the other hand, many illustrations, especially abroad, of the hygienic efficiency of slow sand filtration, and in this country the results of years of operation of the Lawrence filter and Albany filter. The Lawrence results have been related so frequently that many of you are familiar with them, but, as they are as yet the foremost American exemplification of the value of sand-filtered water, they must be repeated here.

The water works of the city of Lawrence were built in 1875, water being taken from the Merrimack River, and soon after their introduction the number of deaths from typhoid fever in the city began to increase. It was finally recognized in the last of the '80s that whenever there was an epidemic of typhoid fever in Lowell, which occurred practically every year, there was also an epidemic of typhoid fever in Lawrence, the city of Lowell, with its present population of 100,000 people, being located about nine miles up the river from the intake of the Lawrence water works, and all its sewage passing into the Merrimack. Investigations showed that infection from Lowell reached Lawrence and was distributed throughout the Lawrence water supply system, and this investigation resulted in the construction of the Lawrence filter in 1892 and 1893.

In the tables given, showing the growth of the city of Lawrence in population, the total number of deaths in the city, year by year, is also shown, and the total number of deaths from typhoid fever before and after the construction of this filter. It will be seen from this table (Table 1) that the greatest number of deaths from typhoid fever in the city, namely, 60, occurred in 1890, when the population of the city was less than 45,000; that in 1892, the year before the construction of the filter, the total number of typhoid deaths was 50, the city having in that year a population of about 48,000; that in 1894, the first year that filtered water was supplied to the city, the number of deaths from typhoid decreased to 24 (more than in any subsequent year to date, as shown by the table), and the total deaths in the city decreased more than 300, or from 1,211 to 901. In 1906 the total number of deaths was 1,330, an increase of 9.8 per cent., and the population of the city was 76,000, an increase of about 75 per cent. The total number of deaths from typhoid fever in 1906 was 15, as against 50 in 1892, making the comparative death rate from typhoid fever as follows: in 1892, 111 per 100,000, and in 1906, 20 per 100,000, or a decrease of 83 per cent. The rates for the intervening years are shown on the table. In Albany

the reduction was from an average of 71.5 deaths per year from typhoid for the nine years preceding the building of the filter to an average of 23.8 for the six years following the construction. The reduction in the number of cases of typhoid in Albany was from an average of 424.8 cases per year for the nine years preceding the building of the filter to an average of 100.5 for the six years following construction. The total deaths also decreased very remarkably as at Lawrence.

TABLE 1.—*Vital Statistics, Lawrence, Mass., 1888 to 1906, inclusive.*

YEAR.	Total Number of Deaths from Typhoid Fever.	Typhoid Death-rate, 100,000 of Population.	Total Deaths.	Population.
1888,	48	120.0	—	43,100
1889,	53	137.5	1,122	43,800
1890,	60	133.3	1,191	44,700
1891,	55	122.0	1,136	46,200
1892,	50	111.1	1,211	47,700
1893,	39	86.6	1,171	49,200
1894,	24	50.0	901	50,700
1895,	16	30.7	993	52,200
1896,	10	18.6	1,017	54,300
1897,	9	16.2	1,087	56,400
1898,	11	18.8	1,057	58,500
1899,	20	33.1	1,234	60,500
1900,	11	17.6	1,250	62,500
1901,	12	18.5	1,118	64,700
1902,	11	16.5	1,163	66,800
1903,	22	31.9	1,178	68,900
1904,	10	14.1	1,140	71,000
1905,	14	19.0	1,372	73,500
1906,	15	19.6	1,330	76,400

TABLE 2.—*Number of Deaths from Typhoid Fever reported in Albany during the Nine Years before and Six Years since the Starting of the Filter Plant.¹*

	Deaths from Typhoid before Filter Plant was started.			Deaths from Typhoid after Filter Plant was started.
1890-91,	97	1899-1900,	.	39
1891-92,	38	1900-01,	.	27
1892-93,	45	1901-02,	.	19
1893-94,	47	1902-03,	.	22
1894-95,	98	1903-04,	.	24
1895-96,	85	1904-05,	.	12
1896-97,	65			
1897-98,	84			
1898-99,	84			

While, as I have stated, the actual hygienic efficiency of modern mechanical filters has not been as yet adequately demonstrated, yet such efficiency is, I believe, undoubtedly obtained and will be demonstrated

¹ Compiled from records of Bureau of Health and State Board of Health.

eventually. There is a place for each type of filter. Sand filters are successful with polluted but comparatively clear waters, and, with the addition of sedimentation basins and the occasional use of coagulants, with waters somewhat turbid. At the present time, however, no method of satisfactorily handling the very turbid waters full of clay and other matters in suspension is known other than by the use of coagulants and mechanical filters, although sedimentation and double sand filtration are of much promise. The prejudice in some minds against the use of aluminum sulphate under proper supervision is, I believe, not justified; the aluminum hydrate formed is invariably removed by the filters if they are successfully operated. We might, perhaps, as well refuse to eat many common foods because in their production chemicals are used as to object to water clarified by coagulants. The public is beginning to demand a clean water of good appearance, as well as safe, and in order to obtain such a water coagulants are sometimes necessary. Before either type of filter is adopted, thorough preliminary studies of all the local conditions as to water supply, etc., should be made, and hasty and inexpert conclusions prevented.

TABLE 3.—*Number of Deaths from Typhoid Fever and Rate per 100,000 Population in Albany and Neighboring Cities.¹*

	Albany.	Cohoes.	Troy.	Water-vliet.	Schenectady.	Rensselaer.
Population	100,000	24,000	75,000	14,300	56,000	10,000
Number of deaths yearly from typhoid,	12	13	32	6	11	5
Rate per 100,000,	12	54	43	42	20	50

¹ From monthly bulletins of State Department of Health.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING OCT. 5, 1907.

CITIES AND TOWNS.	Population, ¹ Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years,	DEATHS FROM—				
				Principal Infectious Diseases.	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.
Boston,	609,761	207	85	50	24	20	1	—
Worcester,	132,249	37	10	7	—	5	2	—
Fall River,	106,123	49	31	27	1	—	—	1
Cambridge,	99,745	26	10	5	—	—	—	—
Lowell,	96,380	53	19	14	3	3	2	—
Lynn,	80,743	20	3	3	—	2	—	1
New Bedford,	79,744	31	21	17	1	1	—	—
Springfield,	78,707	12	3	2	—	—	1	—
Lawrence,	76,000	24	10	6	3	2	2	—
Somerville,	72,581	14	5	5	2	3	3	—
Holyoke,	51,730	19	12	8	2	3	—	—
Brockton,	51,280	17	6	3	—	—	—	1
Malden,	39,941	6	2	—	—	—	—	—
Chelsea,	38,659	17	8	1	—	1	—	—
Salem,	38,316	16	5	2	—	1	—	1
Newton,	38,209	9	3	2	1	—	—	—
Haverhill,	38,095	13	3	3	3	3	—	—
Fitchburg,	33,636	6	3	1	—	1	—	—
Everett,	31,274	8	2	2	—	2	—	—
Taunton,	30,967	12	0	3	2	2	—	—
Quincy,	29,944	6	2	3	—	1	—	—
Waltham,	27,493	7	2	2	—	—	—	1
Pittsfield,	26,425	8	1	5	1	1	—	—
Gloucester,	26,011	2	1	—	—	—	—	—
Brookline,	25,003	4	1	—	—	—	—	—
North Adams,	22,150	5	2	3	—	—	—	1
Chicopee,	20,615	7	4	—	—	—	—	—
Northampton,	20,508	3	0	1	—	1	—	—
Medford,	20,294	2	1	1	—	1	—	—
Beverly,	15,794	4	—	1	—	1	—	—
Leominster,	15,139	3	1	—	—	—	—	—
Hyde Park,	15,050	3	1	—	—	—	—	—
Melrose,	14,867	4	1	1	1	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—
Woburn,	14,462	4	—	1	—	1	—	—
Marlborough,	14,263	—	—	—	—	—	—	—
Westfield,	14,169	4	3	1	—	1	—	—
Peabody,	13,787	—	—	—	—	—	—	—
Revere,	13,697	3	1	1	—	—	—	1
Attleborough,	13,294	1	0	—	—	—	—	—
Clinton,	13,105	8	3	1	—	—	—	—
Adams,	13,072	3	2	1	—	—	—	—
Gardner,	12,528	2	1	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—
Watertown,	11,946	4	2	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—
Weymouth,	11,691	3	1	—	—	—	—	—
Framingham,	11,648	4	1	—	—	—	—	—
Southbridge,	11,416	3	3	2	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,244,461	693	275	187	44	57	12	7	1
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING OCT. 12, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	212	79	34	17	13	3	1	-
Worcester,	132,240	40	12	15	1	4	4	1	-
Fall River,	106,123	49	33	23	4	2	2	1	-
Cambridge,	99,745	27	9	12	1	4	3	-	-
Lowell,	96,380	43	16	6	4	3	2	-	-
Lynn,	80,743	18	2	5	-	3	1	1	-
New Bedford,	79,744	30	13	1	1	2	1	2	-
Springfield,	78,707	23	3	5	7	1	1	2	-
Lawrence,	76,000	27	9	12	2	7	1	1	-
Somerville,	72,581	20	5	5	2	2	-	-	-
Holyoke,	51,730	10	5	5	1	1	1	1	-
Brockton,	51,289	14	5	1	-	-	-	-	-
Malden,	39,941	13	4	1	-	1	-	-	-
Chelsea,	38,659	9	5	-	-	-	-	-	-
Salem,	38,316	8	3	-	-	-	-	-	-
Newton,	38,209	7	2	1	1	-	-	-	-
Haverhill,	38,095	7	2	-	-	1	1	-	-
Fitchburg,	33,636	5	2	-	-	-	-	-	-
Everett,	31,274	11	6	-	-	-	-	-	-
Taunton,	30,967	17	4	3	2	1	-	-	-
Quincy,	29,944	6	3	-	-	-	-	-	-
Waltham,	27,493	8	3	1	-	-	-	-	-
Pittsfield,	26,425	11	0	4	-	-	1	-	-
Gloucester,	26,011	6	3	-	-	-	-	-	-
Brookline,	25,003	7	2	-	-	-	-	-	-
North Adams,	22,150	9	1	-	1	-	-	-	-
Chicopee,	20,615	9	7	2	-	-	-	-	-
Northampton,	20,508	13	2	3	-	-	-	-	-
Medford,	20,294	6	1	1	-	1	1	-	-
Beverly,	15,794	4	1	-	-	-	-	-	-
Leominster,	15,139	4	-	1	-	-	-	-	-
Hyde Park,	15,050	5	2	1	-	-	-	-	-
Melrose,	14,867	4	1	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	4	0	2	-	-	-	-	-
Marlborough,	14,263	3	1	-	-	-	-	-	-
Westfield,	14,169	4	1	1	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	-	-	-	-	-	-	-	-
Attleborough,	13,294	4	1	1	-	-	-	-	-
Clinton,	13,105	3	1	-	-	-	-	-	-
Adams,	13,072	5	3	-	-	-	-	-	-
Gardner,	12,528	2	1	-	-	-	-	-	-
Milford,	12,409	-	-	-	-	-	-	-	-
Watertown,	11,946	4	0	-	1	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	4	1	-	-	-	-	-	-
Framingham,	11,648	5	1	1	1	1	-	-	-
Southbridge,	11,416	5	4	1	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, .	2,245,027	725	259	148	36	50	15	. 11	-
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WEEK ENDING OCT. 19, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Pulmonary. Pneumonia.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	208	62	39	24	19	1	7	—
Worcester,	132,240	34	8	5	4	4	—	—	—
Fall River,	106,123	35	24	7	7	3	—	—	—
Cambridge,	99,745	32	6	6	5	5	—	—	—
Lowell,	96,380	35	10	6	2	2	1	2	—
Lynn,	80,743	23	7	4	—	3	1	2	—
New Bedford,	79,744	20	10	9	—	4	—	1	—
Springfield,	78,707	16	5	2	2	—	—	2	—
Lawrence,	76,000	27	8	6	1	2	—	—	—
Somerville,	72,581	24	6	6	3	3	—	1	—
Holyoke,	51,730	22	6	8	1	3	2	—	—
Brockton,	51,283	9	3	—	2	—	—	—	—
Malden,	39,941	7	—	—	—	—	—	—	—
Chelsea,	38,659	15	4	2	—	—	1	1	—
Salem,	38,316	8	3	1	—	—	—	—	—
Newton,	38,209	4	4	1	—	1	—	—	—
Haverhill,	38,095	6	1	—	1	—	—	—	—
Fitchburg,	33,636	6	3	—	—	—	—	—	—
Everett,	31,274	7	—	2	—	2	—	—	—
Taunton,	30,967	10	4	1	3	—	—	—	—
Quincy,	29,944	5	4	1	1	—	—	—	—
Waltham,	27,493	7	2	1	—	—	—	1	—
Pittsfield,	26,425	6	1	2	—	—	—	—	—
Gloucester,	26,011	10	3	2	1	2	—	—	—
Brookline,	25,003	3	2	—	—	—	—	—	—
North Adams,	22,150	5	3	2	—	—	—	—	—
Chicopee,	20,615	4	3	—	—	—	—	—	—
Northampton,	20,508	4	1	—	—	—	—	—	—
Medford,	20,294	6	2	—	1	—	—	—	—
Beverly,	15,794	2	1	—	—	—	—	—	—
Leominster,	15,139	5	1	—	—	—	—	—	—
Hyde Park,	15,050	5	1	—	—	—	—	—	—
Melrose,	14,867	3	2	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	2	—	—	—	—	—	—	—
Marlborough,	14,263	3	0	1	—	1	—	—	—
Westfield,	14,169	3	1	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	3	1	—	1	—	—	—	—
Attleborough,	13,294	2	1	—	—	—	—	—	—
Clinton,	13,105	6	2	1	—	1	—	—	—
Adams,	13,072	5	3	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—
Milford,	12,409	—	—	—	—	—	—	—	—
Watertown,	11,946	3	0	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	2	0	1	—	—	—	—	—
Framingham,	11,648	—	—	—	—	—	—	—	—
Southbridge,	11,416	6	2	1	—	—	—	1	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,234,548	648	210	117	57	55	6	16	-
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WEEK ENDING OCT. 26, 1907.

CITIES AND TOWNS.	Population, Es- timated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Phtisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	192	48	31	17	15	6	—	—	—
Worcester,	132,240	39	8	8	6	5	1	1	1	—
Fall River,	106,123	46	21	18	4	4	1	1	1	—
Cambridge,	99,745	27	4	6	5	3	—	—	—	—
Lowell,	96,380	38	11	7	5	4	2	3	2	—
Lynn,	80,743	18	7	3	4	2	—	1	1	—
New Bedford,	79,744	27	14	1	2	1	—	1	1	—
Springfield,	78,707	22	2	3	2	—	—	2	1	—
Lawrence,	76,000	23	5	3	2	—	—	2	1	—
Somerville,	72,581	27	7	8	4	4	—	—	2	—
Holyoke,	51,730	11	4	3	2	2	2	—	—	—
Brockton,	51,289	12	4	2	1	1	—	1	1	—
Malden,	39,941	11	1	2	—	—	—	1	1	—
Chelsea,	38,659	11	4	2	—	—	—	1	1	—
Salem,	38,316	15	5	4	—	—	—	3	—	—
Newton,	38,209	11	2	2	1	1	—	—	—	—
Haverhill,	38,095	15	2	2	2	1	2	—	—	—
Fitchburg,	33,636	10	4	2	1	—	—	—	—	—
Everett,	31,274	3	—	—	—	—	—	—	—	—
Taunton,	30,967	17	6	1	4	1	—	—	—	—
Quincy,	29,944	11	2	3	—	3	—	—	—	—
Waltham,	27,493	13	3	2	2	1	1	—	—	1
Pittsfield,	26,425	8	1	—	—	—	—	—	—	—
Gloucester,	26,011	7	2	—	1	—	—	—	—	—
Brookline,	25,003	6	2	—	—	—	—	—	—	—
North Adams,	22,150	4	0	1	—	—	—	—	—	—
Chicopee,	20,615	5	3	—	—	—	—	—	—	—
Northampton,	20,508	10	1	2	—	—	1	—	—	—
Medford,	20,294	6	2	—	—	—	—	—	—	—
Beverly,	15,794	5	1	—	—	—	—	—	—	—
Leominster,	15,139	7	3	—	2	—	—	—	—	—
Hyde Park,	15,050	4	1	1	—	—	—	—	—	1
Melrose,	14,867	5	2	2	—	—	1	—	—	1
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	3	1	—	1	—	—	—	—	—
Marlborough,	14,263	3	1	1	—	1	1	—	—	—
Westfield,	14,169	5	2	—	3	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	2	—	—	—	1	—	—	—	—
Attleborough,	13,294	4	0	—	—	—	—	—	—	—
Clinton,	13,105	4	1	—	—	—	—	—	—	—
Adams,	13,072	10	5	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	5	2	1	—	1	—	—	—	1
Watertown,	11,946	2	1	—	—	1	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	2	0	—	—	—	—	—	—	—
Framingham,	11,648	4	—	—	—	—	—	—	—	—
Southbridge,	11,416	—	—	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,247,189	710	197	119	59	58	17	10	—
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF OCT. 5, 12, 19 AND 26, 1907.

DISEASE.	Place.	WEEK ENDING—			
		Oct. 5.	Oct. 12.	Oct. 19.	Oct. 26.
Cerebro-spinal meningitis, .	Boston, . . .	3	1	2	-
	Cambridge, . . .	-	-	-	1
	New Bedford, . . .	-	-	-	1
	Newton, . . .	-	-	-	1
	Weymouth, . . .	-	-	1	-
	Worcester, . . .	1	-	-	-
Erysipelas,	Boston,	-	-	-	1
	Salem,	-	-	1	-
Whooping cough,	Boston,	-	1	-	-
	Fall River,	1	-	-	1
	Lawrence,	-	1	-	-
Scarlet fever,	Boston,	1	-	-	-
	Worcester,	1	1	-	-
	Chicopee,	1	-	2	-
	Fall River,	-	1	-	-
	Holyoke,	-	-	1	-
	Lowell,	-	-	1	-
	Newton,	1	-	-	-
	Somerville,	-	1	-	-
	Springfield,	1	-	-	1
Influenza,	Woburn,	-	1	-	-

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF OCT.
5, 12, 19 AND 26, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	Oct. 5.	Oct. 12.	Oct. 19.	Oct. 26.
Diphtheria,	183	183	190	202
Measles,	25	28	27	33
Scarlet fever,	115	97	115	119
Typhoid fever,	109	121	116	87
Phthisis,	100	99	68	103
Cerebro-spinal meningitis,	6	5	3	2
Whooping cough,	2	4	4	8
Malaria,	—	1	—	—
Smallpox,	—	—	—	1
Varicella,	2	1	4	2
Erysipelas,	—	1	—	2
Tetanus,	1	1	—	1

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examination of food and drugs made by the State Board of Health during the month of October, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Baking powder,	—	2	2	Maple syrup,	—	1	1
Butter,	4	—	4	Meat products:—			
Cider,	1	—	1	Canned meat,	1	1	2
Cocoa,	5	2	7	Hamburg steak,	—	1	1
Coffee,	2	—	2	Head cheese,	5	—	5
Condensed milk,	—	2	2	Mince meat,	1	—	1
Cream,	2	—	2	Sausages,	8	—	8
Cream of tartar,	12	—	12	Milk,	159	195	354
Drugs,	94	32	126	Oysters,	1	—	1
Flavoring extracts:—				Pickles,	5	—	5
Lemon,	2	—	2	Proprietary food,	1	—	1
Vanilla,	4	—	4	Salad dressing,	2	—	2
Grape juice,	2	2	4	Spices,	29	—	29
Honey,	3	—	3	Table sauce,	1	1	2
Malt liquor:—				Vinegar,	1	1	2
Beer,	1	—	1	Wine,	3	—	3
Porter,	2	—	2	Total,	351	240	591

The samples of drugs found to be adulterated were: alcohol, cera flava, fluidextractum zingiberis, linimentum camphora, spiritus camphoræ, spiritus frumenti, spiritus vini gallici, tinctura iodi, and several proprietary preparations.

The cities and towns in which samples were collected were: Adams, Athol, Bedford, Brockton, Boston, Cambridge, Chelsea, Chelmsford, Everett, Fitchburg, Holyoke, Ipswich, Lawrence, Lexington, Lowell, Lynn, Malden, Milton, New Bedford, North Adams, Northampton, North Brookfield, Pittsfield, Salem, Somerville, Southbridge, Spencer, Springfield, Stoneham, Stoughton, Sudbury, Waltham, Webster, Westborough, Westfield, Winchester and Worcester.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Twenty-seven convictions were secured during the month of October, 1907, for selling adulterated food and cocaine preparations, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Thos. J. Galligan,	Boston,	Cocaine Hydrochloride.
2	Thos. J. Galligan,	Boston,	Standard Catarrh Powder.
3	Thos. J. Galligan,	Boston,	Standard Catarrh Powder.
4	John B. O'Hara,	Cambridge,	Maltine with Coca Wine.
5	Sturgis C. Faxon,	Cambridge,	Metcalf's Coca Wine.
6	Dennis A. Murphy,	Adams,	Maltine with Coca Wine.
7	William F. Rooney,	Waltham,	Sweet Piccallette. ¹
8	J. Warren Chadwick,	Lawrence,	Milk (total solids, 11.40).
9	Wm. M. Chase,	Swansea,	Milk (total solids, 10.95).
10	Archie Dion,	Lawrence,	Milk (total solids, 11.32).
11	Nelson D. Dernimgue,	Lawrence,	Milk (total solids, 11.37).
12	George C. H. Dufton,	Lawrence,	Milk (total solids, 11.00).
13	Joseph Lanouette,	Lawrence,	Milk (total solids, 11.57).
14	Martin Maselbor,	Ipswich,	Milk (total solids, 10.46). ^{2,3}
15	Martin Maselbor,	Ipswich,	Milk (total solids, 10.46). ³
16	John W. Merrill,	Danvers,	Milk (total solids, 12.20). ¹
17	Leidger Pellerin,	Lawrence,	Milk (total solids, 11.54).
18	Thomas Palmer,	Danvers,	Milk (total solids, 11.02).
19	Charles E. Phillips,	Lynn,	Milk (total solids, 11.24).
20	Alfred Frouex,	Lawrence,	Milk (total solids, 10.00).
21	William E. Ralton,	Lawrence,	Milk (total solids, 11.05).
22	Dennis F. Reardon,	Lynn,	Milk (total solids, 11.45).
23	George T. Robertson,	Danvers,	Milk (total solids, 11.40).
24	Mary B. Rubenstein,	Springfield,	Milk (total solids, 10.92).
25	Fred Tougas,	Ipswich,	Milk (total solids, 10.62).
26	William C. Wallace,	Ipswich,	Milk (total solids, 10.72). ¹
27	William C. Wallace,	Ipswich,	Milk (total solids, 10.91). ³

¹ Contained preservatives.

² Watered.

³Appealed.

Fines imposed, \$370.

LIST OF ADULTERATED OR IMPROPERLY LABELED FOODS, ETC., FOR OCTOBER, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.	
9981 N	" Lakeside Braud " con-densed milk,	Wayne County Condensed Milk Company, Ontario { Centre, N. Y.,	Condensed skinned milk, fat in original milk, 1.8 per cent.	
5332 M	"Top Notch Brand" evaporated cream,	Van Camp Packing Company, Indianapolis, Ind., .	Condensed skinned milk, fat in original milk, 2.7 per cent.	
6267	Grape juice,	Adolph Prince, Grand Street, New York, .	Preserved with salicylic acid.	
6411	"Picador" tomato bouillon,	Crown Cordial and Extract Company, New York, .	Preserved with benzoic acid.	
6306	" Admiral " cocoa,	Hub Cocoa Works, Boston, .	. 57 per cent. cane sugar.	
6311	Cocoa cream,	Cocoa Cream Company, Boston, .	. 60 per cent. cane sugar.	
6351	Milk,	Joseph Marghan, East Fairhaven, Mass., .	Total solids 11.89 per cent.; contained added water.	
6429	Milk,	George F. Noyes, Dracut, Mass., .	Total solids 10.77 per cent.; contained added water.	
6434	Milk,	{ Alice Holland, Chelmsford, Mass.,	Total solids 10.80 per cent.; contained added water.	
6436	Milk,	Fowler Brothers, Westfield, Mass., .	Total solids 11.24 per cent.; contained added water.	
13 P	Milk,		Total solids 10.72 per cent.; contained added water.	
6437	Milk,	{ G. Fred Everett, Milton, Mass.,	Total solids 10.73 per cent.; fat 1.70 per cent.; skinned milk.	
6438	Milk,	William J. Smith, North Dartmouth, Mass., .	Total solids 11.40 per cent.; fat 2.75 per cent.; skinned milk.	
6535	Milk,		Total solids 11.80 per cent.; fat 2.45 per cent.; skinned milk.	
6444	Milk,	{ Louis Lampson, Lowell, Mass.,	Total solids 10.73 per cent.; fat 2.50 per cent.; skinned milk.	
6445	Milk,		Total solids 10.80 per cent.; fat 2.30 per cent.; skinned milk.	
6387	Tincture of iodine,	Hayes & Pierson Company, Fitchburg, Mass., .	60 per cent. of U. S. P. strength.	
6632 M	Tincture of iodine,	Union Drug Store, Fall River, Mass., .	41 per cent. of U. S. P. strength.	
9845 N	Spirit of camphor,	R. E. Mole, Adams, Mass., .	56 per cent. of U. S. P. strength.	
6490	Spirit of camphor,	The Williams & Charlton Company, Hartford, Conn., .	55 per cent. of U. S. P. strength.	

6012	Camphorated oil,	E. E. Gray Company, Boston,	1 per cent. camphor.
6068	Camphorated oil,	J. H. Folkins Company, Chelsea,	2 per cent. camphor.
6354	Camphorated oil,	Proctor's Pharmacy, Dorchester,	3 per cent. camphor.
5122 M	Camphorated oil,	Edward V. Blanchard, Worcester,	4 per cent. camphor.
5154 M	Camphorated oil,	C. H. & H. A. Lawton, New Bedford,	8 per cent. camphor.
6460	Camphorated oil,	S. G. Lyford Company, Lowell,	8 per cent. camphor.
6440	Camphorated oil,	Gowig Extract Company, Reading,	10 per cent. camphor.
6413	Camphorated oil,	Dr. C. Henotte, Lowell,	10 per cent. camphor.
6312	Camphorated oil,	Charles Crompton, Lynn,	13 per cent. camphor.
5048 M	Camphorated oil,	E. H. Patten, Cambridge,	14 per cent. camphor.
5048 M	Camphorated oil,	Sanders Pharmacy, Cambridge,	14 per cent. camphor.
6046	Camphorated oil,	A. P. Parkhurst & Co., Gloucester,	14 per cent. camphor.
6047	Camphorated oil,	M. H. Perkins, Gloucester,	15 per cent. camphor.
5052 M	Camphorated oil,	S. W. Farwell, Cambridge,	16 per cent. camphor.
A 283	I-Want-A Chocolate (compound) Brooklyn Factory 49-61 Clymer St.	Not obtainable.	Not labelled according to law. No formula. Cereal proved to be wheat flour, 25 per cent.

INSPECTION OF DAIRIES.

During the month of October, 1907, 368 dairies supplying milk for public sale in Massachusetts were examined. Of this number, 155 are situated in Connecticut, Maine and Rhode Island. The Massachusetts dairies yielded the following data:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Blackstone,	14	9	64.29	5	35.71
Brookline,	3	1	33.33	2	66.67
Cambridge,	8	4	55.56	4	44.44
Carlisle,	2	—	—	2	100.00
Charlton,	52	5	9.62	47	90.38
Concord,	3	1	33.33	2	66.67
Douglas (East),	6	3	50.00	3	50.00
Halifax,	4	3	75.00	1	25.00
Hanson (South),	1	1	100.00	—	—
Northbridge,	25	2	8.00	23	92.00
Southborough,	1	—	—	1	100.00
Spencer,	50	6	12.00	44	88.00
Uxbridge,	43	15	34.88	28	65.12
Woburn,	1	—	—	1	100.00

Total number of dairies examined (including those in Connecticut, Maine and Rhode Island),	368
Number found to be free from objectionable conditions,	78
Number to which letters were sent,	290
Total number of conditions to which attention was called,	1040
Percentage of dairies which passed inspection,	21.20

The names of the owners of the dairies found to be worthy of commendation follow:—

Blackstone.

Bailey, Henry.	Fuller, O. F.	Ryan, Timothy.
Chase, Charles E.	McLaughlin, Mrs. Ellen.	Taft, Willis.
Eames, Eugene J.	Phipps, Romie.	Webster, Albert.

Brookline.

Shaw, Robert G., 2d.

Cambridge.

Harley, Patrick.	Jennings, C. J.
Hickey, Timothy.	Printon, Robert.

Charlton.

Charlton Town Farm.	Hitchcock, Homer S.
Fitzgerald, George R.	Hammond, J. G.
Taylor, R. H.	

Concord.

Jones, George E.

Douglas (East).

Kenyon, F. J.

Taft, Lafayette.

Wallis, David A. E.

Halifax.

Bosworth, Daniel O.

Sturtevant, George.

Tewksbury, C. F.

Hanson (South).

Howland, Calvin.

Northbridge.

Whitin, Estate of C. P.

Whitin, Mrs. John C.

Spencer.

Hadley, S. D.

Sagendorph, Arthur H.

Sibley, R. A.

Newton, John M.

Sagendorph, N.

Wilson, Mrs. L. H.

Uxbridge.

Casavant, A.

Hollis, John E.

Taft, George S.

Davison, Wayland.

Scott, S. F.

Taft, George Z.

Dunlavy, John.

Seagrave, Charles E.

Uxbridge Cotton Mill.

Farnum, J. H.

Seagrave, Fred.

White, Willis H.

Hamilton, Frank J.

Seagrave, Lawson.

Henry, Charles.

CONNECTICUT DAIRIES.

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Ashford,	6	1	16.67	5	83.33
Brooklyn,	4	-	-	4	100.00
Chaplin,	17	3	17.65	14	82.35
Columbia,	6	2	33.33	4	66.67
Coventry,	12	3	25.00	9	75.00
Eastford,	10	3	30.00	7	70.00
Hampton,	21	3	14.29	18	85.71
Lebanon,	2	-	-	2	100.00
Mansfield,	10	3	30.00	7	70.00
Pomfret,	21	5	23.81	16	76.19
Scotland,	3	-	-	3	100.00
Willimantic,	1	-	-	1	100.00
Windham,	5	1	20.00	4	80.00

Total number of Connecticut dairies examined, 118

Number found to be free from objectionable conditions, 24

Number to which letters were sent, 94

Total number of conditions to which attention was called, 435

Percentage of dairies which passed inspection, 20.34

MAINE DAIRIES.

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Buxton,	5	-	-	5	100.00
Gorham,	30	4	13.33	26	86.67
Westbrook,	1	-	-	1	100.00

Total number of Maine dairies examined, 36
 Number found to be free from objectionable conditions, 4
 Number to which letters were sent, 32
 Total number of conditions to which attention was called, 156
 Percentage of dairies which passed inspection, 11.11

RHODE ISLAND DAIRY.

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Burrillville,	1	-	-	1	100.00

Total number of Rhode Island dairies examined, 1
 Number found to be free from objectionable conditions, -
 Number to which letters were sent, 1
 Total number of conditions to which attention was called, 2
 Percentage of dairies which passed inspection, -

NEW YORK'S NEW LAW CONCERNING DIRTY MILK CANS.

ACTS OF 1907, CHAPTER 610.

AN ACT TO AMEND THE AGRICULTURAL LAW, RELATIVE TO PROHIBITING THE USE OF UNCLEAN OR UNSANITARY CANS OR RECEPTACLES FOR THE TRANSPORTATION OR SALE OF MILK OR MILK PRODUCTS, AND APPOINTMENT OF INSPECTORS.

[Became a law July 18, 1907, with the approval of the Governor. Passed, three-fifths being present.]

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Chapter three hundred and thirty-eight of the laws of eighteen hundred and ninety-three, entitled "An act in relation to agriculture, constituting articles one, two, three, four and five of chapter

thirty-three of the general laws," is hereby amended by adding thereto, after section thirty-two, two new sections, to be sections thirty-two-a and thirty-two-b thereof, to read, respectively, as follows:

§ 32-a. *Unsanitary cans and receptacles condemned.* — All cans, or receptacles used in the sale of milk, cream or curd for consumption, or in transporting or shipping the same to market or the delivery thereof to purchasers for consumption as human food, when found by the commissioner of agriculture or his assistants or agents to be in unfit condition to be so used for reason of being worn out, badly rusted, or with rusted inside surface, or unclean or unsanitary or in such condition that they can not be rendered clean and sanitary by washing, and will tend to produce or promote in milk, cream or curd when contained therein, bad flavors, unclean or unwholesome conditions favorable to unhealthfulness or disease, shall be condemned by the commissioner of agriculture or his assistants or agents. Every such can or receptacle when so condemned shall be marked by a stamp, impression or device, designed by the commissioner of agriculture, showing that they have been so condemned, and when so condemned shall not thereafter be used by any person for the purpose of so selling, transporting or shipping milk, cream or curd.

§ 32-b. *Receptacles to be cleaned before return; may be seized; evidence; violation; milk can inspectors.* — Whenever any can or receptacle is used for transporting or conveying milk, cream or curd to market for the purpose of selling or furnishing the same for consumption as human food, which can or receptacle, when emptied, is returned or intended to be returned to the person or persons so selling, furnishing or shipping such substance to be again thus used, or which is liable to continued use in so transporting, conveying, selling or shipping such substance as aforesaid, the consumer, dealer or consignee using, selling or receiving the milk, cream or curd from such can or receptacle, shall, before so returning such can or receptacle, thoroughly remove all particles of such substance therefrom, by rinsing with water or otherwise. When any such milk, cream or curd is sold within any city of this state or shipped into any such city, the fact of such shipment or sale shall be prima facie evidence that the same was so shipped or sold for consumption as human food. When any such can or receptacle is returned or delivered or shipped to any person or creamery so selling such substance within, or shipping the same into any such city, it is deemed that such can or receptacle is liable to such continued use in so selling or shipping such substance therein for consumption as human food within the meaning and purposes of this and the preceding sections. No person shall place or suffer to be placed in any such can or re-

ceptacle any sweepings, refuse, dirt, litter, garbage, filth or any other animal or vegetable substance liable to decay and tending to produce or promote an unsanitary condition, nor shall any such consignee or other person through himself, his agent or employe, bring or deliver to any person or railroad or other conveyance any such can or receptacle for the purpose of such return, or any milk, cream or curd can or receptacle for the purpose of delivery or shipment to any person or creamery engaged in so selling or shipping such substances for consumption as human food, which can or receptacle contains such particles of milk, cream or curd, or such other substance as is herein prohibited from being placed therein. The word "curd" as used in this and the preceding section applies to the substance otherwise known as "pot cheese" or "cottage cheese." Whenever any such can or receptacle is used, returned, delivered or shipped in violation of this section, or of section thirty-two-a of this chapter, every such use, return, delivery or shipment of each such can or receptacle shall be deemed a separate violation thereof. Such cans or receptacles so used, returned, delivered or shipped in violation of this section or of section thirty-two-a may be seized by the commissioner of agriculture, his assistants or agents and held as evidence of such violation. For the proper enforcement of this section and section thirty-two-a the commissioner of agriculture may appoint two milk can inspectors to be stationed chiefly in the city of New York who shall receive the usual compensation of other agents of the department of agriculture.

§ 2. This act shall take effect immediately.

AN OUTBREAK OF TYPHOID FEVER IN SOMERSET.

During the latter part of September it came to the knowledge of the State Inspector of Health, of District No. 2, that typhoid fever existed in the village of Somerset, and a careful investigation was immediately instituted, which disclosed the fact that 12 persons had been seized between September 8 and 23, and 5 more came down with the disease before the inquiry terminated in October. Of the 17 victims, 7 were children under ten years of age, 2 were housekeepers, 2 were bridge workers, and the others were workmen in various trades.

It was learned that prior to the outbreak, in August and early September, there had occurred among the 30 workmen on the upper and lower bridges of the New York, New Haven & Hartford Railroad, between Somerset and Fall River, frequent cases of illness, marked by

headache, nausea, vomiting and diarrhoea, and that at one time about half of the men had left the work on account of sickness. Most of the men boarded in houses scattered throughout the village.

It appeared probable that the initial case of infection among the workmen occurred about the middle of August, and that this man, whose occupation was that of day draw-tender, had the walking type of the disease. Previous to the village outbreak, a resident whose occupation was that of night draw-tender was stricken. The day draw-tender lived in the house of a man who produced milk for public sale, and the night draw-tender was himself a milk producer. It is perhaps more than a mere coincidence that 12 of the 17 village patients were consumers of the milk sold from these two places; but proof that the milk had been specifically contaminated is lacking.

Investigation of the water supply at the lower bridge and in various parts of the village showed gross pollution by sewage. During August the bridge workmen used the water of the well at the railroad station, adjoining the premises of the night draw-tender above mentioned. As the water acquired bad odor and taste, its use was discontinued, and then recourse was had to another well between the tracks in front of the station. This well was not protected from surface drainage, and hence it is possible that it may have been polluted by the discharges from the closets of passing trains. The report of the Board on the water supply is given below.

The conditions found on the premises where cases of the disease occurred were in the main exceedingly insanitary, overflowing cesspools and privy vaults in close proximity to wells being the rule, with barnyards and pigpens in unusually filthy state.

Whether the infection was due to polluted water, or to contaminated milk, or to both, could not be determined.

Following is the report, sent to the local board, on the waters taken for examination:—

To the Board of Health of the Town of Somerset.

GENTLEMEN:—In response to a communication received Oct. 19, 1907, stating that an epidemic of typhoid fever has occurred in Somerset village, and requesting an examination of the water of certain private wells, the Board has caused an examination to be made of the wells located at the houses of Nicholas Powers, Eber Ray, Sarah A. Hood, Franklin Simmons, George H. Melvin, and of a well located near the New York, New Haven & Hartford Railroad at the foot of Old Colony Avenue, known as the "railroad" well, and samples of their waters to be analyzed.

The results of the analyses show that the water entering all of these wells has been very badly polluted by sewage, and not thoroughly purified in its passage through the ground before entering the wells. The numbers of

bacteria were high in the waters of most of the wells, and in some of them bacteria characteristic of sewage were found to be present.

In the opinion of the Board, the further use of the waters of any of these wells, with the exception of that near the house of Franklin Simmons, should be prevented. The water of the well of Franklin Simmons, though badly polluted, was evidently, at the time this examination was made, being quite well purified in its passage through the ground before entering the well, and in its present condition may not be unsafe for drinking; but changes in the circumstances affecting its pollution may at any time render this water unsafe, and the Board cannot recommend its continued use.

The results of the examinations show that there is very great need of a general water supply in this village, and the Board would recommend that the town take measures without delay to introduce a public water supply from some suitable source.

AN OUTBREAK OF TYPHOID FEVER IN CAMBRIDGE AND SOMERVILLE.

During the month of September 33 cases of typhoid fever occurred in Somerville and 28 in Cambridge. Investigation by the State Inspector of Health of District No. 6 revealed the following facts. Of the 61 cases, 43, or 70 per cent., occurred within the period September 19–October 1. Of the 33 Somerville victims, 26 were seized in quick succession after September 20, and all of these as well as 1 who came down on September 5, and 6 of the Cambridge victims, obtained milk, directly or indirectly, from the same dealer, who sold part of his night supply to other Cambridge dealers upon whose routes scattered cases of the disease occurred. The first case on this man's route in Cambridge and the first on his route in Somerville appeared at about the same time.

Investigation of the dairies from which the milk supply was derived revealed the fact that to one or more of them were sent cans from a place where milk was bottled and cans were washed by a man who was nursing a person who had been stricken with typhoid fever early in September. He was uncleanly in his habits and very careless in his work, some of the cans which he "washed" being strong-smelling and partially lined with sour scum. It is most likely that infective material from the person whom he nursed was conveyed by his hands directly into the cans and into the milk. This outbreak emphasizes the necessity of strict cleanliness on the part of all who handle milk, and of prohibiting the handling of milk by anybody coming in contact with persons suffering with any of the communicable diseases.

A FATAL FAMILY OUTBREAK OF TRICHINOSIS.

About March 1, 1907, Channing Angell and his wife, of Chesterfield, living in an isolated house on the road to the adjoining town of Huntington, were taken suddenly ill. Later, four of their five children were seized with the same symptoms, the only one to escape being a nursing infant. After being treated for about five weeks for what was supposed to be typhoid fever, Mrs. Angell died; whereupon the local board of health appealed to the State Board for the services of an expert to determine the source of the infection. Examination of the other members of the family led to the diagnosis of trichinosis, which finding was abundantly confirmed later. Pieces of salted pork were taken from the food supply on hand and subjected to microscopical examination, which revealed the worms in large numbers.

A few days later Mr. Angell succumbed; whereupon post-mortem examinations were made in both cases, and bits of muscular tissue from each body were forwarded to the Board for microscopic study. Four days later one of the children, a girl of three years, died, and her body was examined by order of the district attorney. Each bit of muscular tissue examined in each case contained trichinæ in large numbers. These were most numerous in certain of the preparations made from the tissues of Mr. Angell; and in the tissues of Mrs. Angell and the child many of the organisms were motile.

On May 9 another of the children died, and at the same time it was learned that a neighbor, who had come in to help out when the family was prostrated, was under treatment, but improving rapidly. No post-mortem examination of the body of the fourth victim was made, there being no doubt as to the cause of death.

Inquiry into the circumstances preceding the outbreak revealed the fact that Mr. Angell bought half of a hog which had been killed and dressed in an unlicensed slaughterhouse, and that the carcass was disposed of without any inspection whatever.

The pieces of meat obtained at the house for examination were uncooked, and had recently been salted. It was stated that they were a part of the animal which the family had been eating, and that no other pork had been used.

A communication from the office of the district attorney of the Northwestern District, dated Oct. 9, 1907, states that the person who conducted the slaughterhouse without a license had been convicted and

sentenced to pay a fine of one hundred dollars, and that a complaint against the one who sold the meat without the inspection required by law was still pending.

TRICHINOSIS: ITS CAUSE, FREQUENCY, SYMPTOMS, TREATMENT AND PREVENTION.

In view of the occurrence of the outbreak described above and of the general disregard, in rural communities, of the laws relative to the operation of slaughterhouses and to the inspection of carcasses before sale, the following extracts from Circular No. 108, of the Bureau of Animal Industry, U. S. Department of Agriculture, issued in April last, are worthy of attention. The circular was prepared by B. H. Ransom, Chief of the Division of Zoölogy.

Trichinosis is a disease occurring in man and other animals as a result of eating flesh containing the living larvæ of a parasite, *Trichinella spiralis*, commonly known as trichinæ.

These larvæ have been found encysted in the muscles of many different kinds of mammals, most frequently those of omnivorous or carnivorous habits. The occurrence of trichinæ in herbivorous mammals, or in those which do not normally eat meat, is very rare, and results only when, abandoning their usual food habits, or accidentally, these animals eat meat which happens to be infested with the parasite, or when as a matter of experiment they are purposely fed such meat. From the standpoint of public health, the only animals which are of importance in this country as sources of infection and propagators of the disease are hogs and rats. Man becomes infected through eating trichinous pork, hogs become trichinous by eating the trichinous flesh of other hogs or of rats, and rats acquire the parasite by eating the flesh of trichinous hogs or by eating other rats which happen to be infested. The country slaughterhouses where hogs are commonly kept and fed on the offal of slaughtered animals and where rats usually abound are one of the most important factors, if not the most important, in the propagation of infection.

LIFE HISTORY AND DESCRIPTION OF TRICHINELLA SPIRALIS.

Three stages may be distinguished in the life history of the parasite.—the adult, the embryo, and the encysted larva.

In the adult stage the parasites are small, slender worms, gradually increasing in thickness toward the posterior end, and scarcely visible to the naked eye. This stage of the parasite lives in the intestine, and develops from larvæ swallowed in infested meat. The cysts surrounding the larvæ are destroyed by the action of the gastric juices, and the larvæ, passing

from the stomach into the intestine, grow to maturity in about two days, and, according to their sex, become adult males or females. The male is the smaller of the two, measuring only about 1.5 mm. in length (about $\frac{1}{16}$ of an inch), the female measuring 3 to 4 mm. in length (about $\frac{1}{8}$ to $\frac{1}{6}$ of an inch).

The embryos begin to escape from the bodies of the females into the intestine of the host about six days after infestation, and the production of embryos may continue for a month or more, but abates considerably after the first few days. The adult worms usually disappear from the intestine in five or six weeks, or even sooner if the patient is affected with diarrhea. The total number of embryos which each female is able to produce has been estimated at 10,000 to 15,000.

As soon as born the embryos begin to migrate, penetrating the intestinal wall and entering the connective tissue, lymphatics and blood vessels. They are apparently aided in their migrations by the blood current, and are carried to various portions of the body, finally entering the muscles. This period of migration lasts from six to ten days. Having reached its final resting place in a muscle, the embryo grows considerably, reaching a length of 0.8 to 1 mm. (about $\frac{1}{30}$ to $\frac{1}{25}$ of an inch) and a thickness of 40μ (about $\frac{1}{600}$ of an inch). Meanwhile as it grows the embryo coils itself into a spiral and becomes surrounded by a membranous cyst, produced by changes in the interfascicular connective tissue of the muscle, brought about in consequence of the irritating influence of the worm.

In form the trichina cyst is usually ovoid or lemonshaped, with its long axis directed parallel with the muscle fibers. The average size is about 400μ by 250μ (about $\frac{1}{60}$ by $\frac{1}{100}$ of an inch). After a time fat globules are deposited on the outside of the cyst in little masses at each pole. In seven or eight months after infestation the cysts begin to degenerate, commonly becoming calcified, and the vitality of the worms is finally destroyed.

This process of degeneration is completed usually within about two years, although cases are on record in which calcification of the cysts was still very slight as long as eleven years after infestation, and the worms were still alive.

The number of encysted larvae which may be present in even a small piece of muscle in cases of severe infestation is very large. As many as 1,200 have been counted in a piece of muscle weighing 1 gram, which would make about 500,000 in a pound. If a person were to eat a pound of pork thus heavily infested, and if all of the larvae developed to maturity in his intestine, and if each female produced the estimated number of 10,000 embryos, there would be set free in the intestine 2,500,000,000 to 3,000,000,000 embryos. Of course in an actual case not all of the larvae would develop, and not every female would produce as many embryos as assumed in the estimate, nor would all the embryos succeed in penetrating the intestinal wall and migrating into the muscles. The computation, however, gives an idea of the great intensity which infestation may reach. The number of cysts present in the bodies of persons who have died with the disease has been estimated in various cases at from 5,000,000 to 100,000,000.

SYMPTOMS OF TRICHINOSIS.

The severity of the symptoms of trichinosis depends upon the number of living larval worms taken into the body. Three periods in the course of the disease are commonly distinguished.

The first period begins in from two days to a week, sometimes not for nearly two weeks after infestation. The symptoms appearing in this stage are those of gastro-intestinal irritation, due to the development of the worms in the intestine and the liberation of the embryos, and consist of lack of appetite, nausea, abdominal pains, diarrhoea and fever. These symptoms are not constant, and are often absent.

The symptoms of the second period — that corresponding to the migration of the embryos — develop between the seventh and tenth days, sometimes later. There is more or less fever, and the muscles become tense and swollen and are painful on movement or pressure. There may be pain and difficulty in chewing, swallowing and breathing, on account of the involvement of the muscles concerned in these functions.

In the third stage, following the encystment of the worms in the muscles, the patient becomes emaciated and anemic, watery swellings appear, especially in the face, the skin may itch and tingle, and eruptions sometimes appear.

The duration of the symptoms, as well as their intensity, depends upon the degree of infestation.

Trichinosis is often mistaken for typhoid fever, on account of the similarity of the symptoms; and the muscular pains are sometimes taken for rheumatism.

In light cases recovery occurs in about two weeks; in severe attacks it does not begin for six weeks, and several months may elapse before the patient entirely recovers. In fatal cases death rarely occurs earlier than the second week or later than the seventh, usually between the fourth and sixth weeks, when the muscular symptoms are at their height.

The symptoms of trichinosis in hogs are similar to those in the human patient, ordinarily much less pronounced, and recovery usually follows. During the migrations of the worms into the muscles the animal moves with difficulty, the limbs are stiff, and the hind quarters sometimes seem to be paralyzed. There is soreness of the muscles, more or less diarrhoea, and sometimes skin eruptions, so that hog cholera may be suspected by the layman. As a rule, however, the symptoms are so slight that the disease in hogs passes entirely unnoticed.

TREATMENT OF TRICHINOSIS.

If the disease is recognized early, the patient may be treated with purgatives and vermifuges, to expel the worms from the intestines. There is no treatment which will affect the embryos after their migrations are begun.

FREQUENCY OF TRICHINOSIS.

The frequency of the disease in man depends upon the frequency of infection in hogs used for food, and upon the extent to which insufficiently cooked, or raw, imperfectly cured pork is eaten. Nearly a thousand cases have been placed on record or are definitely known to have occurred in this country, and a large percentage of those patients whose nationality has been ascertained were Germans. In certain States of the German Empire the custom of eating raw pork is a common one; and, out of 6,329 cases which occurred in that country during the years 1881 to 1898 (as collected by Stiles¹), 5,456 cases occurred in States where raw pork is an established article of diet.

The frequency of trichinosis in hogs in this country, as indicated by the microscopic examination of pork for export, formerly carried on by this Bureau (not because it was considered of value as a sanitary measure, but for the purpose of meeting the requirements of foreign trade), averages from 1 to 2 per cent. In some localities the percentage is much higher than this, in others it is less, and there is more or less variation from year to year.

PREVENTION OF TRICHINOSIS.

In spite of the prevalence of trichinosis among hogs in this country, there need be no fear of infection in man if the proper precautions are taken. The danger of infection may be entirely avoided, and only avoided, if pork is not eaten until after it has been thoroughly cooked or thoroughly cured. By either of these means any trichinæ which may be present are killed and rendered harmless. Trichinous meat thus treated is perfectly fit for food and just as wholesome as non-infested meat, except in rare instances, when the infestation is so severe as to cause extensive pathologic changes.

Consumers should understand that the government mark, "U. S. Inspected and Passed," does not guarantee that the meat has been inspected for trichinæ. In all cases, therefore, whether pork has been inspected or not, it should be thoroughly cooked or thoroughly cured before it is used for food.

RESIGNATION AND APPOINTMENT.

Dr. Richard S. Benner of Springfield, State Inspector of Health of District No. 14, submitted his resignation to the Governor early in October. Dr. Herbert C. Emerson of Springfield was appointed to fill the vacancy, and the appointment was confirmed by the Governor's Council on October 23.

MONTHLY BULLETIN



OF THE
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OF
MASSACHUSETTS.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING Nov. 2, 1907.

CITIES AND TOWNS.	Population, ¹ estimated for 1907.	Reported Deaths in each.	Deaths under Five Years.	DEATHS FROM —					
				Practical In- fectious Dis- eases.	Acute Lung Diseases.	Pneumonia.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	244	59	44	31	28	4	2	-
Worcester,	132,240	43	5	7	9	5	1	-	-
Fall River,	106,123	51	24	4	11	1	-	2	-
Cambridge,	99,745	14	3	4	1	3	-	1	-
Lowell,	96,380	28	8	5	6	2	3	-	-
Lynn,	80,743	25	11	3	-	2	-	-	-
New Bedford,	79,744	25	1	5	3	3	-	-	-
Springfield,	78,707	27	8	2	7	-	-	-	-
Lawrence,	76,000	26	9	3	1	2	1	-	-
Somerville,	72,581	14	3	6	2	3	-	1	-
Holyoke,	51,730	21	2	2	4	2	-	-	-
Brockton,	51,289	9	2	1	2	1	-	-	-
Malden,	39,941	11	3	3	-	2	1	-	-
Chelsea,	38,659	10	4	-	-	-	-	-	-
Salem,	38,316	21	4	1	1	1	-	-	-
Newton,	38,209	12	5	-	1	-	-	-	-
Haverhill,	38,095	3	1	-	-	-	-	-	-
Fitchburg,	33,636	18	4	1	3	1	-	-	-
Everett,	31,274	10	1	2	-	1	-	-	-
Taunton,	30,967	-	-	-	-	-	-	-	-
Quincy,	29,944	1	-	-	-	-	-	-	-
Waltham,	27,493	10	2	2	1	2	-	-	-
Pittsfield,	26,425	8	1	1	-	1	-	-	-
Gloucester,	26,011	-	-	-	-	-	-	-	-
Brookline,	25,003	4	-	-	-	-	-	-	-
North Adams,	22,150	5	1	1	-	1	-	-	-
Chicopee,	20,615	8	3	1	1	1	1	-	-
Northampton,	20,508	9	2	1	2	1	-	-	-
Medford,	20,294	2	-	1	-	-	-	-	-
Beverly,	15,794	2	-	-	-	1	-	-	-
Leominster,	15,139	2	1	-	-	-	-	-	-
Hyde Park,	15,050	5	1	-	-	-	-	-	-
Melrose,	14,867	2	0	1	-	1	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	5	0	-	-	-	-	-	-
Marlborough,	14,263	3	0	-	-	-	-	-	-
Westfield,	14,169	4	-	-	-	-	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	4	1	-	-	-	-	-	-
Attleborough,	13,294	2	1	-	-	-	-	-	-
Clinton,	13,105	4	2	-	-	-	-	-	-
Adams,	13,072	1	1	-	-	-	-	-	-
Gardner,	12,528	0	-	-	-	-	-	-	-
Milford,	12,409	2	-	1	-	1	-	-	-
Watertown,	11,946	1	0	-	-	1	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	3	0	-	-	-	-	-	-
Framingham,	11,648	-	-	-	-	-	-	-	-
Southbridge,	11,416	6	-	1	-	1	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation

Total of reporting towns, . . .	2,202,507	705	173	102	88	66	10	6	-
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING NOV. 9, 1907.

CITIES AND TOWNS.	Population. Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal Infectious Diseases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	205	47	31	27	19	2	4	—
Worcester,	132,240	24	6	7	2	2	—	2	—
Fall River,	106,123	38	16	5	1	3	—	—	—
Cambridge,	99,745	15	3	3	5	2	—	—	—
Lowell,	96,380	38	8	1	4	3	—	—	—
Lynn,	80,743	18	2	4	5	1	—	—	—
New Bedford,	79,744	27	9	6	3	4	1	—	—
Springfield,	78,707	19	7	6	3	3	—	1	1
Lawrence,	76,000	27	6	6	3	3	—	—	—
Somerville,	72,581	17	2	3	3	3	—	—	—
Holyoke,	51,730	29	14	8	2	2	—	—	—
Brockton,	51,289	5	2	3	1	2	—	—	—
Malden,	39,941	14	2	3	1	2	—	—	1
Chelsea,	38,659	18	4	4	—	3	—	—	—
Salem,	38,316	15	1	2	—	2	—	—	—
Newton,	38,209	7	—	2	1	1	—	—	—
Haverhill,	38,095	20	—	2	4	2	—	—	—
Fitchburg,	33,636	8	2	1	1	—	—	—	—
Everett,	31,274	5	1	2	—	—	—	—	—
Taunton,	30,967	—	—	—	—	—	—	—	—
Quincy,	29,944	4	1	3	1	—	—	—	—
Waltham,	27,493	6	0	1	—	—	—	—	1
Pittsfield,	26,425	6	1	—	2	—	—	—	—
Gloucester,	26,011	—	—	—	—	—	—	—	—
Brookline,	25,003	7	1	—	—	—	—	—	—
North Adams,	22,150	4	—	—	—	—	—	—	—
Chicopee,	20,615	6	2	1	—	—	—	—	—
Northampton,	20,508	6	3	2	—	—	—	—	—
Medford,	20,294	8	—	—	2	—	—	—	—
Beverly,	15,794	1	—	—	—	—	—	—	—
Leominster,	15,139	8	3	—	—	—	—	—	1
Hyde Park,	15,050	5	1	—	1	—	—	—	—
Melrose,	14,867	1	1	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	2	1	—	—	—	—	—	—
Marlborough,	14,263	6	1	—	—	1	—	—	—
Westfield,	14,169	3	1	—	—	1	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	2	1	—	—	—	—	—	—
Attleborough,	13,294	2	0	1	—	—	1	—	—
Clinton,	13,105	0	—	—	—	—	—	—	—
Adams,	13,072	7	4	2	—	1	1	—	1
Gardner,	12,528	1	—	—	—	—	—	—	—
Milford,	12,409	0	—	—	—	—	—	—	—
Watertown,	11,946	0	—	—	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	2	0	—	—	—	—	—	—
Framingham,	11,648	1	1	—	—	1	—	—	—
Southbridge,	11,416	3	1	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,214,155	640	155	107	73	63	5	11	—
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WEEK ENDING NOV. 16, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Influenza Infectious Diseases.	Aente Lung Diseases.	Rheumatism.	Diphtheria.	Typhoid Fever.	Malaria.
Boston,	609,761	185	53	26	29	15	1	1	1
Worcester,	132,240	44	11	1	9	1	-	-	1
Fall River,	106,123	44	19	7	5	2	-	-	1
Cambridge,	99,745	25	2	6	6	-	-	-	-
Lowell,	96,380	30	4	6	5	-	-	-	-
Lynn,	80,743	21	3	7	4	1	-	-	1
New Bedford,	79,744	26	9	2	2	1	-	-	1
Springfield,	78,707	17	3	3	2	1	-	-	1
Lawrence,	76,000	17	7	3	4	2	-	-	1
Somerville,	72,581	20	5	3	2	1	-	-	1
Holyoke,	51,730	23	9	1	1	1	-	-	-
Brockton,	51,289	10	0	1	2	1	-	-	-
Malden,	39,941	8	1	1	1	1	-	-	-
Chelsea,	38,659	7	2	-	-	-	-	-	-
Salem,	38,316	14	3	1	-	1	-	-	-
Newton,	38,209	8	4	-	-	-	-	-	-
Haverhill,	38,095	6	2	1	-	-	-	-	-
Fitchburg,	33,636	9	5	1	3	-	-	-	1
Everett,	31,274	8	2	-	-	-	-	-	-
Taunton,	30,967	16	0	1	1	1	-	-	-
Quincy,	29,944	7	2	2	2	-	-	-	-
Waltham,	27,493	1	0	-	-	-	-	-	-
Pittsfield,	26,425	10	0	1	1	1	-	-	-
Gloucester,	26,011	7	-	-	-	-	-	-	-
Brookline,	25,003	4	1	-	-	-	-	-	-
North Adams,	22,150	10	-	1	-	-	-	-	-
Chicopee,	20,615	7	4	1	1	-	-	-	-
Northampton,	20,508	8	5	2	-	-	1	1	-
Medford,	20,294	1	-	-	-	-	-	-	-
Beverly,	15,794	1	1	-	-	-	-	-	-
Leominster,	15,139	2	1	-	-	-	-	-	-
Hyde Park,	15,050	4	1	-	1	-	-	-	-
Melrose,	14,867	3	0	-	-	-	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	6	-	-	-	-	-	-	-
Marlborough,	14,263	1	0	-	-	-	-	-	-
Westfield,	14,169	6	1	2	1	1	1	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	3	1	1	1	-	-	1	-
Attleborough,	13,294	3	2	1	1	-	1	-	-
Clinton,	13,105	2	1	1	-	-	-	-	1
Adams,	13,072	2	2	-	2	-	-	-	-
Gardner,	12,528	1	-	-	-	-	-	-	-
Milford,	12,409	1	1	-	-	-	-	-	-
Watertown,	11,946	2	1	-	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	4	1	1	-	-	-	-	-
Framingham,	11,648	3	-	1	-	-	1	-	-
Southbridge,	11,416	3	2	1	-	-	1	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns,	2,271,133	640	171		87	81	49	10	8	3
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WEEK ENDING NOV. 23, 1907.

CITIES AND TOWNS.	Population, estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Phthisis.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	198	40	31	28	21	6	1	—	—
Worcester,	132,240	37	6	8	3	—	—	—	—	—
Fall River,	106,123	43	19	13	5	4	—	—	—	—
Cambridge,	99,745	20	8	3	1	1	1	1	1	—
Lowell,	96,380	41	14	8	2	2	3	—	—	—
Lynn,	80,743	22	4	2	—	1	1	1	—	—
New Bedford,	79,744	21	9	7	—	—	—	—	—	—
Springfield,	78,707	23	4	12	12	4	2	1	—	—
Lawrence,	76,000	27	14	9	2	—	—	2	—	1
Somerville,	72,581	23	3	4	3	3	—	—	1	—
Holyoke,	51,730	18	7	6	2	1	2	—	—	—
Brockton,	51,289	12	3	—	2	—	—	—	—	—
Malden,	39,941	10	2	3	2	2	2	1	—	—
Chelsea,	38,659	15	3	3	—	1	—	—	1	—
Salem,	38,316	14	4	2	—	—	—	—	1	—
Newton,	38,209	13	4	—	1	2	1	—	—	—
Haverhill,	38,095	10	1	1	2	1	—	—	—	—
Fitchburg,	33,636	10	3	2	2	2	2	—	—	—
Everett,	31,274	7	1	—	—	—	—	—	—	—
Taunton,	30,967	14	3	5	1	2	—	—	—	—
Quincy,	29,944	7	—	1	—	1	—	—	—	—
Waltham,	27,493	8	3	—	2	—	—	—	—	—
Pittsfield,	26,425	13	4	—	3	—	—	—	—	—
Gloucester,	26,011	6	—	—	2	—	—	—	—	—
Brookline,	25,003	6	—	2	1	1	1	—	—	1
North Adams,	22,150	9	3	2	—	1	—	—	—	—
Chicopee,	20,615	6	3	4	—	1	—	—	—	—
Northampton,	20,508	12	5	—	2	—	—	—	—	—
Medford,	20,294	3	—	—	—	—	—	—	—	—
Beverly,	15,794	2	1	1	—	—	—	—	—	1
Leominster,	15,139	4	—	—	—	1	—	—	—	—
Hyde Park,	15,050	0	—	—	—	—	—	—	—	—
Melrose,	14,867	3	0	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	5	4	—	—	—	—	—	—	—
Marlborough,	14,263	2	0	—	—	—	—	—	—	—
Westfield,	14,169	3	—	—	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	2	—	—	—	—	—	—	—	—
Attleborough,	13,294	1	0	—	—	—	—	—	—	—
Clinton,	13,105	6	1	1	—	—	1	—	—	—
Adams,	13,072	3	3	—	2	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	4	0	—	2	2	—	—	—	—
Watertown,	11,946	3	0	—	1	—	—	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—	—
Weymouth,	11,691	—	—	—	—	—	—	—	—	—
Framingham,	11,648	—	—	—	—	—	—	—	—	—
Southbridge,	11,416	4	1	1	2	1	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns,	2,235,266	690	180	116	85	51	18	12	1
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WEEK ENDING NOV. 30, 1907.

CITIES AND TOWNS.	Population estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal In- fectionous Dis- eases.	Acute Lung Diseases.	Phthisis.	Diphtheria	Typhoid Fever.	Malaria.	
Boston,	609,761	201	39	30	38	24	3	-	-	1
Worcester,	132,240	33	11	9	2	4	-	-	-	1
Fall River,	106,123	49	15	9	9	6	-	-	-	3
Cambridge,	99,745	28	3	3	4	3	-	-	-	-
Lowell,	96,380	33	11	4	5	2	2	-	-	-
Lynn,	80,743	31	8	6	1	1	1	-	-	-
New Bedford,	79,744	22	7	4	5	2	-	-	-	-
Springfield,	78,707	20	4	3	1	1	-	-	-	-
Lawrence,	76,000	22	6	3	2	2	-	-	-	-
Somerville,	72,581	17	5	3	4	2	-	-	-	-
Holyoke,	51,730	23	6	6	1	1	-	-	-	-
Brockton,	51,289	10	3	2	2	2	-	-	-	-
Malden,	39,941	10	2	1	1	1	-	-	-	-
Chelsea,	38,659	11	1	1	1	1	-	-	-	-
Salem,	38,316	16	5	4	1	2	2	-	-	-
Newton,	38,209	10	1	1	1	1	-	-	-	-
Haverhill,	38,095	17	5	2	1	1	-	-	-	-
Fitchburg,	33,636	5	3	3	2	1	1	-	-	-
Everett,	31,274	7	1	1	1	1	-	-	-	-
Taunton,	30,967	15	3	3	4	1	-	-	-	-
Quincy,	29,944	9	5	4	1	1	1	-	-	-
Waltham,	27,493	7	2	3	1	2	1	-	-	-
Pittsfield,	26,425	7	2	1	1	1	-	-	-	-
Gloucester,	26,011	-	-	1	1	1	-	-	-	-
Brookline,	25,003	2	-	1	1	1	-	-	-	-
North Adams,	22,150	5	0	3	1	1	-	-	-	-
Chicopee,	20,615	8	5	2	1	1	-	-	-	-
Northampton,	20,508	9	1	2	1	1	-	-	-	-
Medford,	20,294	2	-	1	1	1	-	-	-	-
Beverly,	15,794	2	-	1	1	1	-	-	-	-
Leominster,	15,139	2	-	1	1	1	-	-	-	-
Hyde Park,	15,050	2	0	1	1	1	-	-	-	-
Melrose,	14,867	3	1	1	1	1	-	-	-	-
Newburyport,	14,755	-	-	1	1	1	-	-	-	-
Woburn,	14,462	4	1	1	1	1	-	-	-	-
Marlborough,	14,363	2	1	1	1	1	-	-	-	-
Westfield,	14,169	2	-	1	1	1	-	-	-	-
Peabody,	13,787	-	-	1	1	1	-	-	-	-
Revere,	13,697	3	1	1	1	1	-	-	-	-
Attleborough,	13,294	4	1	1	1	1	-	-	-	-
Clinton,	13,105	3	2	3	1	1	-	-	-	-
Adams,	13,072	-	-	1	1	1	-	-	-	-
Gardner,	12,528	2	-	1	1	1	-	-	-	-
Milford,	12,409	2	-	1	1	1	-	-	-	-
Watertown,	11,946	5	1	3	1	3	-	-	-	-
Plymouth,	11,796	-	-	1	1	1	-	-	-	-
Weymouth,	11,691	1	0	1	1	1	-	-	-	-
Framingham,	11,648	3	-	1	1	1	-	-	-	-
Southbridge,	11,416	5	2	1	1	1	-	-	-	-
Wakefield,	10,687	-	-	1	1	1	-	-	-	-
Webster,	10,549	-	-	1	1	1	-	-	-	-

Recapitulation.

Total of reporting towns,	2,232,050	674	164	109	84	62	14	4	8
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF NOV. 2, 9, 16, 23 AND 30,
1907.

DISEASE.	Place.	WEEK ENDING —				
		Nov. 2.	Nov. 9.	Nov. 16.	Nov. 23.	Nov. 30.
Cerebro-spinal meningitis,	Boston, . . .	2	1	—	—	1
	Cambridge, . . .	—	1	—	—	—
	Fall River, . . .	—	—	—	1	1
	Lawrence, . . .	—	1	—	—	—
	Lowell, . . .	—	1	—	2	—
	Milford, . . .	—	—	—	1	—
	New Bedford, . . .	1	—	—	—	—
	North Adams, . . .	—	—	—	1	—
	Salem, . . .	—	—	—	1	—
	Springfield, . . .	—	1	—	—	—
Erysipelas,	Boston, . . .	—	—	1	—	—
	Everett, . . .	1	—	—	—	—
Whooping cough,	Boston,	—	—	1	—	—
	Chelsea,	—	—	—	1	—
	Lowell,	—	—	—	—	1
	Lynn,	1	—	—	—	—
	Milford,	—	—	—	1	—
	Springfield,	—	1	—	—	—
	Worcester,	—	—	—	—	1
Scarlet fever,	Chicopee,	—	1	—	2	2
	Fall River,	—	—	—	1	—
	Holyoke,	—	1	1	2	1
	Lawrence,	—	1	—	—	—
	Northampton,	—	—	—	—	1
	Somerville,	—	—	—	—	1
	Springfield,	—	—	—	1	—
	Worcester,	—	1	—	1	1

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF NOV.
2, 9, 16, 23 AND 30, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —				
	Nov. 2.	Nov. 9.	Nov. 16.	Nov. 23.	Nov. 30.
Diphtheria,	199	191	191	199	191
Measles,	98	147	181	180	240
Scarlet fever,	124	145	143	156	129
Typhoid fever,	70	56	58	67	36
Phthisis,	88	74	93	91	91
Cerebro-spinal meningitis,	3	7	5	7	1
Whooping cough,	17	3	3	6	7
Malaria,	—	—	—	—	—
Smallpox,	—	2	—	—	2
Varicella,	4	3	9	10	11
Erysipelas,	1	—	—	—	—
Tetanus,	—	2	—	—	2
Leprosy,	—	—	—	1	—
Rabies,	—	1	—	—	—

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examination of food and drugs made by the State Board of Health during the month of November, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Butter,	9	—	9	Meat products:—			
Canned fruit and vegetables,	6	—	6	Canned meat,	—	1	1
Cider,	1	2	3	Hamburg steak,	3	—	3
Clam bouillon,	1	—	1	Head cheese,	10	—	10
Cocoa and chocolate,	6	1	7	Mince meat,	6	—	6
Coffee,	2	—	2	Sausages,	14	—	14
Condensed milk,	2	3	5	Milk,	251	161	412
Cream of tartar,	5	—	5	Oysters,	1	—	1
Drugs,	107	36	143	Pastry,	—	1	1
Extract of vanilla,	1	2	3	Peanut butter,	1	—	1
Honey,	4	—	4	Pickles,	6	—	6
Jams and jellies,	8	1	9	Salad dressing,	1	—	1
Malt liquors,	4	—	4	Spices,	23	2	25
Maple sugar,	3	—	3	Syrup,	1	—	1
Maple syrup,	6	2	8	Table sauce,	—	2	2
Meat products:—				Vinegar,	6	5	11
Beef extract,	1	—	1	Yeast,	1	3	4
				Total,	490	222	712

The samples of drugs found to be adulterated were: alcohol, fluid-extractum zingiberis, sodii boras, spiritus menthae piperitae, tinctura iodi, and several proprietary medicines.

The cities and towns in which samples were collected were: Abington, Arlington, Boston, Braintree, Bridgewater, Brockton, Cambridge, Chelsea, Dedham, Everett, Easton, Fitchburg, Gardner, Greenfield, Holyoke, Ipswich, Lawrence, Lexington, Lowell, Malden, Medford, Methuen, Montague, Newton, New Bedford, Orange, Peabody, Plymouth, Quiney, Reading, Salem, Somerville, Springfield, Taunton, Wakefield, Waltham, Watertown, Wayland, Westfield, Weymouth, Winchester, Winthrop and Woburn.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Twenty-two convictions were secured during the month of November, 1907, for selling adulterated food, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Joseph W. Nicklas,	New Bedford,	Camphorated oil.
2	Benj. F. Jakeman,	Chelsea, . . .	Camphorated oil.
3	Lewis B. Kotarski,	Ipswich, . . .	Hamburg steak.
4	Martin Maselbos,	Ipswich, . . .	Hamburg steak.
5	Joseph W. Nicklas,	New Bedford, . . .	Tincture of iodine.
6	Charles E. Brown,	Gardner, . . .	Milk (total solids, 11.00).
7	Charles D. Fales, .	Westfield, . . .	Milk (total solids, 11.89).
8	John Fowler, . . .	Westfield, . . .	Milk (total solids, 10.72).
9	Arthur Gaudette, .	Lowell, . . .	Milk (total solids, 11.56).
10	Lewis R. Gifford,	New Bedford, . . .	Milk (total solids, 9.86).
11	Alice Holland,	Lowell, . . .	Milk (total solids, 10.80). ¹
12	Herman Hollander,	Westborough, . . .	Milk (total solids, 11.28). ¹
13	Louis Lampros,	Lowell, . . .	Milk (total solids, 10.7%). ¹
14	Joseph Lewis,	New Bedford, . . .	Milk (total solids, 11.80).
15	Joseph Maughan,	New Bedford, . . .	Milk (total solids, 11.89).
16	Willard S. Parker,	Lowell, . . .	Milk (total solids, 11.34).
17	George W. Parker,	Woburn, . . .	Milk (total solids, 9.26).
18	Manuel Perry,	New Bedford, . . .	Milk (total solids, 11.45).
19	William J. Smith,	New Bedford, . . .	Milk (total solids, 11.80).
20	Walter M. Wellington,	Revere, . . .	Milk (total solids, 10.60).
21	William Whitaker,	New Bedford, . . .	Milk (total solids, 10.50).
22	William Whitaker,	New Bedford, . . .	Milk (total solids, 10.70). ²

¹Appealed.

²Contained preservative.

Fines imposed, \$362.

LIST OF ADULTERATED OR IMPROPERLY LABELLED FOODS, ETC., FOR NOVEMBER, 1907.

Number of sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.	
			Analyses.	Analyses.
169 P	"Ontario" Brand Condensed Milk.	Wayne County Condensed Milk Company, Ontario Centre, N. Y.	Condensed skinned milk; fat in original milk, 1.1 per cent.	
177 P	"Royal" Extract of Vanilla.	John Burnett & Co., Boston and New York,	No extract.	No true vanilla extract.
6739	"Delaney's" Extract of Vanilla.	L. S. B. Delaney Drug Company, Lawrence,	Contained cammarin.	
5718 M	Preserved raspberries, Vienna sausage, "My Wife's" brand syrup.	Lilbey McNeill & Lilbey, Chicago.	Preserved with benzoic acid.	
6530	Pure Vermont maple syrup.	Lilbey, McNeill & Lilbey, Chicago.	Preserved with a compound of boron.	
5712 M	"Merrimac" brand pure white pepper.	Fred Fier, 15 Jay Street, New York,	Incorrect formula; 80 per cent. cane sugar syrup.	
227 O	Compressed yeast, Compressed yeast, Compressed yeast,	W. A. Little & Co., Andrew Square, Boston,	"90 per cent. maple syrup.	90 per cent. cane sugar syrup.
6556	"Merrimac" brand pure white pepper.	F. M. Bell, Lowell,	25 per cent. peas and wheat.	
6665	Milk,	Fleischmann & Co., Old Colony Compressed Yeast Company,	20.58 per cent. wheat starch.	
6666	Milk,	Bay State Compressed Yeast Company, W. Whitman,	18.88 per cent. wheat starch.	
6639	Milk,	105 Chambers Street, Boston.	12.96 per cent. wheat starch.	
21 O	Milk,	Geo. W. Parker, Burlington,	Total solids, 9.26 per cent.; contained added water, 11.44 per cent.	
5934 M	Milk,	Leslie G. Hill, Lowell,	Total solids, 11.02 per cent.; contained added water, 11.08 per cent.	
5942 M	Milk,	Earl H. Cushman, Bridgewater,	Total solids, 11.08 per cent.; contained added water, 11.16 per cent.	
5948 M	Milk,	Warren C. Pierce, Bridgewater,	Total solids, 10.61 per cent.; contained added water, 10.68 per cent.	
6728	Milk,	Archie Dion, Lawrence,	Total solids, 11.30 per cent.; contained added water, 11.37 per cent.	
6928 M	Chocolate,—sweet chocolate.	D. C. Willard, Greenfield,	Contained 25 per cent. wheat flour.	
A 288	Chocolate,—Molawak brand sweet chocolate.	William H. Baker, Syracuse, Incorporated, New York City,	Contained 20 per cent. wheat flour.	
A 289	Quina Larache,	80 Wall Street, New York City,	Contained cocaine.	
6170	"Opal" catarrh powder.	American Branch of P. Comar & Son & Co. (of Paris), New York.	Contained cocaine.	
6720	"Black Diamond" borax.	Standard Remedy Company, Boston.	Contained cocaine.	
6598		Arellald & Lewis, 193 Front Street, New York,	(60) per cent. sodium bicarbonate.	
5786 M	Essence of peppermint,	Albert Soderstrom, Pittsburgh,	58 per cent. of U. S. P., strength-	

LIST OF ADULTERATED FOODS, ETC.—Concluded.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
5658 M	Essence of peppermint,	Butler's Branch Drug Store, Boston, .	33 per cent. of U. S. P. strength.
5828 M	Essence of peppermint,	Frederick L. Pratt, Boston, .	56 per cent. of U. S. P. strength.
291 P	Tincture of iodine,	Ely Pharmacy, Holyoke, .	46 per cent. of U. S. P. strength.
109 O	Alcohol, .	Oxley's Pharmacy, Reading, .	74 per cent. alcohol by volume.
6760	Alcohol, .	Ginter Grocery Company, Boston, .	84 per cent. alcohol by volume.
6761	Alcohol, .	Henry J. Joyce, Boston, .	82 per cent. alcohol by volume.
6775	Alcohol, .	J. R. Magullion & Co., Boston, .	83 per cent. alcohol by volume; "High-proof alcohol, guaranteed under the National Pure Food Law,"
6800	Alcohol, .	A. I. Morris & Co., Boston, .	84 per cent. alcohol by volume; "High-proof alcohol,"

INSPECTION OF DAIRIES.

During the month of November, 1907, 255 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Brimfield,	21	11	52.38	10	47.62
Brookfield,	28	17	60.71	11	39.29
Dudley,	21	5	23.81	16	76.19
Grafton,	5	-	-	5	100.00
Halifax,	12	6	50.00	6	50.00
Monson,	2	-	-	2	100.00
New Braintree,	3	2	66.67	1	33.33
North Brookfield,	32	20	62.50	12	37.50
Oakham,	35	10	28.57	25	71.43
Warren,	57	33	57.89	24	42.11
Watertown,	2	1	50.00	1	50.00
Webster,	5	4	80.00	1	20.00
West Brookfield,	31	23	74.19	8	25.81
Woburn,	1	-	-	1	100.00

Total number of dairies examined 255

Number found to be free from objectionable conditions, 132

Total number of conditions to which attention was called, 431

Percentage of dairies which passed inspection, 51.76

The names of the owners of the dairies found to be worthy of commendation follow:—

Brimfield.

Booth, M. S.
Bradway, Elmer I.
Bradway, Herbert J.
Filer, H. T.

Foskett, D. W.
Haley, John.
Haley, William T.
Lawrence, J. C.

Mulcare, Eugene.
Powers. N. H.
Shaw, Charles T.

Brookfield.

Beaudry, J.
Burgess, E. R.
Chapin, George A.
Courville, Alexander.
Courville, Frank.
Howe (estate of), Julius A.

Hunter, G. M.
Hurd, H. E. & J. B.
King, H. L.
Mellen, W. B.
Mitchell, Charles A.
Norcross, Walter.

Peters, George I.
Pike, Edward.
Prouty, Frank E.
Richardson, William A.
Thompson, F. A.

Dudley.

Babcock, Henry.
Ballard, L.

Bandalow, Fred.
Bateman, W. T.

Downey, J. H.

Halifax.

Angus, Nathan.

Hayward, William C.

Thompson, Otis H.

Hayward (estate of), Geo. W.

Thompson, Austin S.

Thompson, Otis H.
Vickery, Mrs. Maria.

New Braintree.

Frost, Mrs. M. E.

Sage, C. D.

North Brookfield.

Adams, E. B.	Crawford, M. L.	Rock, Frank.
Adams, Judson E.	Deland, Henry C.	Stoddard, A. C.
Banks, George E.	Doane, H. S.	Tarbell, Mrs. Ida F.
Barnes, Wilbur N.	Krusell, John A.	Ward, R. A. B.
Bennett, Mrs. John.	Parkman, George G.	Witt, C. Henry.
Brosnihan, John M.	Rand, Mrs. Clara A.	Woodis, A. L.
Bryant Bros.	Robinson, Walter M.	

Oakham.

Allen, Mrs. Katherine.	Foster, Mrs. Sarah M.	O'Donnell, P.
Burt, L. G.	Gibby, John.	Rutherford, John C.
Dexter, Frank A.	Haskell, Sylvester H.	Sheern, James.
Fairbank, Miss Susan F.		

Warren.

Adams, Samuel H.	Darling, Adelbert T.	Patrick, A. B. & J. B.
Barnes & Ecker.	Day, Herbert A.	Patrick, W. E.
Bliss, Calvin.	Dumas, Oliver.	Shepard, H. N.
Brodeur, Alexander.	Fay, W. T.	Sullivan, Paul.
Burroughs, Herbert R.	Freeman, Henry F.	Van Wagner, Ralph.
Burroughs, Lester L.	Gilligan, Sidney D.	Van Wagner, Royal.
Charon, Philip.	Mahoney, Dennis.	Warren Town Farm.
Coombs, Charles.	Mullen, Mrs. Mary S.	Warriner, Alfred A.
Cronin, Patrick.	Nevins, John.	Williams, Everett E. (agent).
Cuiter, James T.	O'Neil, Charles.	Wilson, Charles E.
Cuiter, S. Newell.	Palmer, A. J.	Woods, Henry.

Watertown.

Steele, A. T.

Webster.

Slater, Miss Ruth.	Snow, A. R.
Slater, S. & Sons.	Webster Town Farm.

West Brookfield.

Aiken, B. F.	Hazen, A. W.	Smith, A. W.
Allen, J. W.	Hyde, R. H.	Smith, Charles.
Bridges, Frank E.	Laroo, Henry.	Walsh, P. P.
Bruce, W. H.	Mason, D. W.	Warfield, A. H.
Clark, J. B.	McRevey, Michael.	Webb, John H.
Cuiter, A. W.	Rawson, Charles.	West Brookfield Town Farm.
Fairbanks, Charles L.	Reed, S. H.	
Gilbert, C. L.	Richardson, C. D.	White, A. C.

FACTS CONCERNING CERTAIN OF THE SOURCES OF THE MILK SUPPLY OF MASSACHUSETTS, BEYOND THE BORDERS OF THE COMMONWEALTH.

VERMONT DAIRIES.

Eighty-five farms, sending milk into Massachusetts, situated in the following 14 towns,—Barnet, Barton, Brownington, Burke, Coventry, Irasburg, Lyndon, McIndoes, Newark, Newport, Putney, St. Johnsbury, Sutton and Westminster,—were visited by the Board's veterinarian. In this territory the great majority of the barns are supplied with running water conducted through pipes from springs situated at a distance of from 300 feet to a half mile. Of the 85 places visited, 78 were thus supplied, and 7 relied upon wells.

On but few of these farms was there a milk house or milk room. The milk is strained, as a rule, back of or otherwise near the cows, and cooled in a trough of running water in the barn or cow yard. The trough is commonly used also as a watering place for cows, horses and other animals. In some instances the trough is placed at the roadside, and serves as a public watering place.

The milk car which conveys the product of these farms to Boston takes it on at the several stations, within two hours after the morning milking, so that, circumstanced as this district is in the matter of running water, the milk house or milk room is not of the importance which it has ordinarily.

The 1,167 cows on these 85 farms furnish to the Boston market nearly 7,000 quarts of milk daily. In point of general health, their average is very high. Not all of them were examined individually, but of the large number that were examined not one showed any evidence of disease, and not an indurated udder was observed.

Of the 85 farms, 20, or nearly one-fourth, were reported as generally commendable; and 65 showed a total of 221 objectionable conditions, chiefly uncleanliness of tie-ups, lack of light and dirty condition of cows.

NEW YORK DAIRIES.

In the 6 towns of Buskirk, Cambridge, Eagle Bridge, Hoosick, Petersburgh and Schaghticoke, 97 milk farms were visited. The total number of cows kept was 859, and the amount of milk sent into Massachusetts therefrom was about 4,600 quarts daily. The cows are not housed in summer, but are kept at pasture all the time, and are milked out of doors. Being pastured at considerable distances from the barns, and

scattered, it was impossible to examine them to any great extent. Milk houses and milk rooms appear to be unknown, and the milk is cooled, handled and stored in all sorts of places,—good and bad.

Of the 97 barns visited, 39 may be rated as "fair," 18 were found to be extremely dirty, 38 were less dirty, and 2 were absolutely unfit and beyond the possibility of being made fit for milk production.

What the winter conditions may be, when the cows are confined, can only be surmised.

MAINE DAIRIES.

In the towns of Buxton, Gorham, North Berwick and Westbrook, 76 sources of the Massaehusetts milk supply were visited. The aggregate number of cows kept was 877, and the daily shipment of milk about 5,200 quarts.

These dairies are distinctly inferior in all respects to those of any other equal area visited. While one-fourth of them may be rated as somewhat below "fair," about an equal number were reported as extremely dirty, the condition of some of them being beyond the power of description, both as to cows and premises; and about one-half were dirty or otherwise objectionable to a lesser extent. At 6 of them gross pollution of the water supply was evident on inspection.

Milk houses and milk rooms appear to be unknown, and the milk is stored in many or most cases in objectionable places and under objectionable conditions.

A number of diseased cows were noted, but the usual assertion was made that their milk was not being marketed.

RHODE ISLAND DAIRIES.

In the towns of Burrillville, Little Compton, Portsmouth and Tiverton, 84 dairies were examined. The aggregate number of cows was 769, and the amount of milk shipped was slightly over 6,000 quarts daily.

The number of dairies which merited commendation was 33, or 40 per cent., which is a very good showing. Of the whole number examined, only 9 could be classed as very dirty. There were 10 dairies which were objectionable in only one particular, which could be easily remedied.

A sample of milk taken from one of the very dirty dairies showed 5,000,000 bacteria per cubic centimeter.

CONNECTICUT DAIRIES.

In addition to the 154 dairies inspected in the towns of East Granby, Enfield, Somers, Somersville, Suffield and West Stafford, when the sources of Springfield's milk supply were examined in the summer of 1906, 119,

situated in the towns of Ashford, Brooklyn, Chaplin, Columbia, Coventry, Eastford, Hampton, Lebanon, Mansfield, Pomfret, Scotland, Willimantic and Windham, were visited in October of the present year. Of the former, but 16, or 10.4 per cent., were worthy of commendation; but the latter make a better, though poor, showing, there being 20, or 16.8 per cent., ratable as "fair." An equal number were reported as being so very dirty that only by dint of much work and extensive alterations can they be made to be even fairly suitable for milk production: 14 were reported as absolutely unfit, and beyond the possibility of improvement short of burning; and 65 as needing an aggregate of 266 suggestions for improvement of conditions. The number of cows kept at these 119 places was 1,344, and the amount of milk shipped daily was about 7,500 quarts.

In most instances the cows were at pasture, and could not be examined.

Of the several States visited, only Vermont and Rhode Island showed dairy farms comparable as a class with those of most sections of Massachusetts.

AN UNUSUALLY DIRTY MILK, AND A PROPER PENALTY FOR ITS SALE.¹

At Westminster police court, on October 16, a street milk vendor, named Edward Hughes, was charged on a warrant under the public health act (London), 1891, section 47, with selling milk which was unwholesome and unfit for food. On September 24, at Millbank Buildings, Earl Street, Westminster, the prisoner was hawking milk in a hand can. Inspector McNair of the Westminster City Council took a sample from a large churn, and found it in a very filthy condition. The churn, which contained about one gallon, and the hand can, containing five pints, were seized, and Mr. Horace Smith made an order for the milk to be destroyed. Dr. F. J. Allan, medical officer of health for the city of Westminster, stated that he had examined the milk. There were black smuts floating on the surface, and a large quantity of very filthy material at the bottom of the can. The fluid smelt most offensively. Microscopic examination disclosed a large quantity of vegetable and other débris, consisting of straw, seeds, particles of tomato skins, fine grit, hairs,—some human, and others belonging to small animals,—pieces of human skin, and other most objectionable matter. The refuse apparently came from a dirty stable or the street. The prisoner said that when the inspector

¹ From "Public Health," November, 1907.

seized the milk it was a foggy morning. He supposed its dirty condition was due to "blacks floating about." He knew nothing about the other things. The magistrate convicted and sentenced the defendant to six months' imprisonment with hard labor,—the maximum penalty.

A MILK-BORNE OUTBREAK OF TYPHOID FEVER IN BONDVILLE AND BELCHERTOWN.

Early in November typhoid fever made its appearance in Bondsville, and by the end of the month the number of cases reported was 17. Across the river, in Belchertown, 4 cases were reported.

All of the 21 victims were supplied with milk by the same dealer, C., a resident of Belchertown. C. produced part of his supply, and secured the rest from two other farmers, G. and S. That which came from G. was not delivered at any of the houses where the cases occurred, and hence may be excluded from consideration. That supplied by S. and that produced by C. were mixed, and the mixture was delivered at these and other houses.

It was learned that one of the first cases reported in Belchertown came at the same time as the first cases in Bondsville, namely, the first week in November, and that the victim was one of C.'s children. It was learned, too, that it was the custom in C.'s family to use in the household such milk as was left after each delivery. The child's case and the first cases in Bondsville were coincident, and hence, unless the child had been ill some days without being conscious of it, they could hardly stand in the relation of cause and effect. No other case occurred in C.'s family, and none was reported from the house of S. On inquiry, however, it was brought out that beginning October 7 and until November 13 a son of S. was too sick to work, and complained of "trouble with his stomach" and "weakness." The attending physician did not treat the case as one of typhoid fever. The person who took care of the son attended also to milking the cows and handling the product, 20 quarts of which were delivered daily to C. The premises of S. when visited showed a general condition of filth which is unfortunately not rare, and the person who had acted as nurse and milker showed a corresponding degree of personal uncleanliness. As it seemed not impossible that the real cause of the son's illness had been overlooked, and that the exciting cause of the 21 cases of typhoid fever in Bondsville and Belchertown had resided in his discharges, had been transferred from them to the milk by the hand that emptied the chamber vessel and did the milking, and thus had been dis-

tributed to C.'s customers, the son was subjected to the Widal test, which proved beyond doubt that he had had typhoid fever in what is known as the "walking" type.

SYMPORIUM ON MILK SUPPLIES.

At the thirty-fifth annual meeting of the American Public Health Association, held in Atlantic City, Sept. 30—Oct. 4, 1907, one of the subjects discussed was milk. The meeting was reported for the "Boston Medical and Surgical Journal," from whose columns (Nov. 21, 1907) the following is taken:—

MILK.

There was a symposium on this subject. Prof. E. B. Voorhees of New Brunswick, N. J., said the public should realize that even at 12 cents good milk was the cheapest and best nourishment it was possible to buy. To produce pure milk at the present selling price in the big cities at a profit to the farmer was impossible. The most careless dairyman could not turn out even his inferior grade of milk for less than 4.7 cents a quart, while an average cost of production of 5 cents was the lowest practical rate. A very small additional expense in the price of milk was necessary to guarantee absolute purity and general quality of milk.

Prof. C. B. Lane said that the majority of dairymen would prefer to sell only the best milk procurable, if the public would pay for it, and he declared that the general public was quite willing to stand the higher rate. More stringent legislation was needed to procure permanent results. At the present time the man who added water to the milk was fined. Generally, the man who sold impure milk went scot-free, and this despite the fact that the latter was much the greater menace. He advised national laws modelled after the British statutes, which permit a consumer to sue for damages a dealer who supplies him with impure milk.

Dr. Thomas Darlington, of New York, advocated that each community should look after its own milk supply. He recommended systematic and constant inspection, in the first place; and, in the second, the prevention of the sale of any milk which was unwholesome and adulterated. Every dairy and every creamery supplying the city of New York had already been inspected. As for preventing the sale of unwholesome milk, he had only to mention that the Court of Special Sessions a day or two ago had 260 cases before it. Gastro-intestinal diseases had been markedly reduced since the proper inspection of milk had been enforced.

Prof. R. A. Pearson of Cornell University discussed the protection of milk under five headings, namely: health of the cow; cleanliness of the cow and her surroundings; condition of the utensils in which the milk was

handled; cleanliness of the employees, including their health; and the cooling and storing of the milk.

Speaking of the tuberculin test, he said that when farmers clearly understood its true value they would want this test made. When they were shown by demonstration that which they failed to understand, they were anxious to have this test. Very many milk producers were honest, and anxious to do what was right; they needed instruction. A campaign of education had been begun; it needed support. Every milk producer should have the opportunity to know the latest concerning his business, then many of them would make the desired improvements in their dairies, and the realization of ideal dairying would go hand in hand with the necessity of enforcing laws.

FREE DISTRIBUTION OF HARMFUL DRUGS.

In order to protect children and others from harm resulting from eating proprietary preparations of injurious drugs put in their way through house-to-house distribution of free samples, the Legislature of 1907 passed the following law (chapter 180):—

SECTION 1. No person shall distribute, deliver or give away in any public street or highway or from house to house or place to place, any bottle, box, envelope or package containing any liquid, medicine, pill, powder, tablet or other article which is composed of any drug, poison or other ingredient or substance which may be in any way injurious or harmful to any child or other person who may taste, eat, drink or otherwise use the same.

SECTION 2. Whoever violates the provisions of this act shall be punished by a fine of not less than fifty nor more than one hundred dollars. [Approved March 8, 1907.]

Among the drugs which the promoters of this bill had in mind, and perhaps more than any other, was acetanilid, the ignorant use of which has resulted in many cases of serious illness and not a few deaths.

The first prosecutions under the act occurred on November 15, when Herbert A. Whittier, William A. Caldwell, John Barrett and John Kumlin were arrested by the police and charged before the East Boston District Court with distributing, on the streets and from house to house, free samples of "Hill's Cascara Quinine Bromide for Colds and La Grippe," each tablet of which contained one and a half grains of acetanilid. Each of the defendants pleaded "guilty," and paid a fine of \$50.

In framing this law, the possibility of free distribution of samples in other public places, such as exhibition halls, appears not to have sug-

gested itself, and hence the persons concerned in the following transaction were guilty of no offence known to the law, although the tablet distributed contained the same drug as did the above, but in larger amount. At the "Food Fair," held in Mechanics' Building, in Boston, during the month of October, there was a booth devoted to advertising a preparation known as "Celero Headache Lozenge," put up in attractive and palatable form, and containing two grains of acetanilid to the lozenge. Samples were given away in envelopes, upon which was printed in large letters, "EAT IT LIKE CANDY — NO WATER NEEDED;" and in smaller type, "A safe and convenient remedy for all forms of HEADACHE and NEURALGIA." They were also given away by the handful from a large uncovered glass dish, the person in charge (sometimes a boy about sixteen years old) calling out, from time to time, "The only harmless preparation on the market. Nothing injurious about it whatever. Will positively cure your headache." On the booth were large display cards emphasizing the statement that the lozenges could be eaten like candy. The envelopes given out contained, besides the samples, copies of a circular which still further emphasized this alleged advantage thus: "The whole list of Headache remedies now in existence require the use of Water in administering; Celero Headache Lozenge can be eaten like candy at any time, before or after meals, in any place or under any conditions. The method is easy, the effect is almost instantaneous, and the patient can feel the utmost confidence that the preparation is perfectly Harmless, and will engender no Drug Habit, as do so many unreliable preparations."

ACETANILID PREPARATIONS.

The following proprietary preparations containing acetanilid have been examined during 1906 and 1907 in the laboratory of the Board:—

- Az-Ma-Syde, Asthma Remedy and Manufacturing Company, Boston.
- Laxative Bromo-quinine, Paris Medicine Company.
- Hammond's Instant Headache Cure, Hanson Company, Taunton.
- Hawthorn's Cold Powders.
- Headache Powder, F. H. Putnam Company, Boston.
- Headache Powders, Wm. L. Sweet, Boston.
- Klein's Kold Kapsules.
- Woodward's Laxative Cold Cure.
- Dr. Holbrook's Kola Powders, Holbrook Kola Company, Boston, Mass.
- Emerson's Bromo-Seltzer.
- Hill's Casearia Quinine Bromide.

- Quimby's Headache Powders, The Quimby Pharmaey, Palmer, Mass.
 Hayes' Headache Powders, F. P. Hayes, Danvers, Mass.
 Week's Break-up-a-Cold Tablets, D. Weeks & Co., Des Moines, Ia., St. Thomas, Ont.
 Wileox's Headache Powders, Wileox's Pharmaey, Bridgewater, Mass.
 SHAC, Stearns' Headache Cure, Stearns & Curtius (Ine.), 5 Platt Street, New York.
 Celero Headache Lozenge.

COCAINE PREPARATIONS ADVERTISED AS UNSALABLE.

During the month of November the following proprietary preparations containing cocaine were examined in the laboratory of the Board and added to the list of unsalable articles:—

Opal Catarrh Powder, Standard Remedy Company, Boston.
 Quina Laroche, T. Laroche.

“Opal Catarrh Powder” is manufactured in Boston, by the same persons whose “I. C. R. Instant Catarrh Relief” and “Standard Catarrh Powder” have already been advertised, and it appears to be the successor of these preparations.

“Quina Laroche” bears a label upon which the following is distributed, some horizontally, some perpendicularly:—

EXP^m INTERN^{le} de PIHAR^{co}
 VIENNE 1883 G^{de} MED^{le} D'OR

EXP^m INTER^{le} PARIS 1879
 et NICE 1885 MED^{le} D'OR

Récompense de 16,600 francs accordée par l'état à T. LAROCHE, Pharmacien pour travaux scientifiques et industriels Paris 1811.

QUINA LAROCHE
ÉLIXIR VINEUX, RECONSTITUANT & FÉBRIFUGE
EXTRAIT COMPLET des 3 QUINQUINAS

Par un procédé dont M^r LAROCHE est lauteur, le “Quina Laroche” tient en dissolution l’extract complet des trois quinquinas, rouge, jaune et gris, c'est-à-dire la totalité des principes de ces précieuses écorces.

Cette préparation est souveraine contre les Affections des Voies Digestives, l'Epuisement, le Manque d'Appétit, les Convalescences paresseuses, les Fièvres, même les plus tenaces.

1 à 2 mesures par jour avant ou après le repas.

Prix en France: LE FLACON 5 fr. le $\frac{1}{2}$ Flacon 3 fr.

DÉPÔT GÉNÉRAL A PARIS

Anciennement 22, 20 & 19, Rue Dronot

Actuellement : 20, Rue des Fossés St. Jacques.

SE TROUVE dans toutes les bonnes Pharmacies de France et de l'Etranger.

QUINA-LAROCHE

TONIC WINE AND STRENGTHENING FEBRIFUGE

(A complete Extract of the three kinds of Bark)

By means of a process of which M. LAROCHE is the inventor, the "Quina Laroche" holds in solution the complete extract of the three Kinds of Cinchona Bark, red, yellow and gray, that is the whole of its valuable properties.

This preparation is the best remedy against Difficult Digestion, Debility, Loss of Appetite, Slow Convalescence and the most obstinate cases of Fever.

NEW-YORK: E. FOUGERA & CO. and at all Chemists and Druggists.

EXP^{ons} DE PARIS 1879. SYDNEY 1879. VIENNE 1883. BATAVIA 1893.

Un Godet Mesure en verre blanc accompagne chaque flacon.

Chaque flacon porte sous la capsule une bande signee T. LAROCHE pour éviter la contrefaçon et les imitations.

Conserver a la Chaleur en Hiver. T. Laroche.

Guaranteed under the
Food and Drugs Act,
June 30, 1906. No. 1495.

One of the requirements of the National Pure Food and Drug Law is a statement of the amount of alcohol present in any preparation: and another provides "that the term 'misbranded,' as used herein, shall apply to all drugs, or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design, or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the state, territory or country in which it is manufactured or produced" (section 8). Regulation 18 of the rules and regulations provided for under the act says: "The name of the manufacturer or producer, or the place where manufactured, except in case of mixtures and compounds having a distinctive name, need not be given upon the label, but if given, must be the true name and the true place."

Whether the phraseology of the above labels, printed in a foreign tongue; whether stating the price in France per bottle to be 5 francs and

per half bottle to be 3 francs; whether giving the directions for use in a foreign language, and whether the care observed in giving the old as well as the present address of Mr. T. Laroche's main office in Paris may be held to be "misleading in any particular," can be ruled upon only by the national authorities; and whether or not any ruling concerning this preparation has been made does not appear; but, whatever the facts may be, a small supplementary label on the back of the bottle is interesting, in that it reads:—

Quina Laroche
Alcohol 17%
Manufactured in New York
At the American Branch of
F. Comar & Son & Co. (of Paris)

MONTHLY BULLETIN



OF THE

STATE BOARD OF HEALTH

OF

MASSACHUSETTS.

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DECEMBER, 1907.

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OF JULY 16, 1894.

STATE BOARD OF HEALTH.

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BOSTON:

WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
18 Post Office Square.
1907.

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**WEEKLY RETURNS OF DEATHS FROM CITIES AND TOWNS
OF MORE THAN 10,000 POPULATION.**

WEEK ENDING DEC. 7, 1907.

CITIES AND TOWNS.	Population, ¹ Estimated for 1905.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM—					
				Principal In- flections Dis- eases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	216	40	23	55	16	2	1	—
Worcester,	132,240	51	12	11	2	2	—	1	—
Fall River,	106,123	36	17	10	7	5	—	—	2
Cambridge,	99,745	31	11	4	6	2	—	—	—
Lowell,	96,380	27	9	3	5	1	2	—	—
Lynn,	80,743	28	6	9	—	5	1	—	—
New Bedford,	79,744	30	14	7	7	4	—	1	—
Springfield,	78,707	27	5	—	6	—	—	—	—
Lawrence,	76,000	25	6	3	—	—	1	1	—
Somerville,	72,581	39	4	5	10	4	1	—	—
Holyoke,	51,730	15	6	3	1	1	1	—	—
Brockton,	51,289	8	—	1	—	1	—	—	—
Malden,	39,941	14	1	1	—	—	1	—	—
Chelsea,	38,659	18	—	—	1	—	—	—	—
Salem,	38,316	8	2	1	—	—	1	—	—
Newton,	38,209	7	—	2	2	1	—	1	—
Haverhill,	38,095	17	4	3	4	2	—	1	—
Fitchburg,	33,636	11	2	—	1	—	—	—	—
Everett,	31,274	4	1	—	—	—	—	—	—
Taunton,	30,967	12	0	—	3	—	—	—	—
Quincy,	29,944	2	—	—	—	—	—	—	—
Waltham,	27,493	7	1	1	—	1	—	—	—
Pittsfield,	26,425	7	2	1	1	—	—	—	1
Gloucester,	26,011	5	1	—	—	—	—	—	—
Brookline,	25,003	5	—	1	2	1	—	—	—
North Adams,	22,150	6	3	2	—	1	—	—	1
Chicopee,	20,615	9	3	4	1	1	2	—	—
Northampton,	20,508	5	—	4	—	2	—	2	—
Medford,	20,294	6	1	2	—	1	—	—	—
Beverly,	15,794	2	—	—	—	—	—	—	—
Leominster,	15,139	5	1	—	1	—	—	—	—
Hyde Park,	15,050	2	1	1	—	—	—	—	—
Melrose,	14,867	1	—	—	—	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—
Woburn,	14,462	9	2	—	—	1	—	—	—
Marlborough,	14,263	3	1	—	—	—	—	—	—
Westfield,	14,169	3	—	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—
Revere,	13,697	1	—	1	—	—	1	—	—
Attleborough,	13,294	2	0	—	—	1	—	—	—
Clinton,	13,105	—	—	—	—	—	—	—	—
Adams,	13,072	5	2	—	—	—	—	—	—
Gardner,	12,528	1	—	—	—	—	—	—	—
Milford,	12,409	7	—	2	—	—	1	—	—
Watertown,	11,946	2	0	—	—	1	—	—	—
Plymouth,	11,796	—	—	—	—	—	—	—	—
Weymouth,	11,691	1	0	—	—	—	—	—	—
Framingham,	11,648	4	—	—	—	—	—	—	—
Southbridge,	11,416	—	—	—	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, . . .	2,246,612	724	158	105	118	53	12	9	5
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¹ The populations were estimated upon the rate of growth from 1900 to 1905. Those of Taunton, Gloucester, North Adams and Clinton were allowed to stand as in 1905, having shown no increase during the five-year period. The gain in the population of Lowell is due to the annexation of a part of the town of Tewksbury. The population of Lawrence by the census of 1905 was 70,050, but, owing to the building of the new Wood and Arlington mills, employing at present some 2,500 operatives, an increase of about 6,000 is estimated by the Lawrence board of health, or 76,000. There will undoubtedly be a further increase by the end of the year, as these mills take on more help.

WEEK ENDING DEC. 14, 1907.

CITIES AND TOWNS.	Population, Esti- mated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	298	75	41	67	23	4	4	1
Worcester,	132,240	42	15	6	10	3	-	-	1
Fall River,	106,123	34	15	8	10	3	-	-	1
Cambridge,	99,745	30	5	3	9	1	1	-	-
Lowell,	96,380	43	14	4	13	3	1	-	-
Lynn,	80,743	29	7	3	-	2	-	-	-
New Bedford,	79,744	19	8	3	3	3	-	-	-
Springfield,	78,707	23	3	3	4	1	1	-	-
Lawrence,	76,000	24	8	4	6	2	-	-	-
Somerville,	72,581	29	3	13	3	4	1	-	-
Holyoke,	51,730	20	5	5	3	1	1	-	-
Brockton,	51,289	4	2	1	1	-	-	-	-
Malden,	39,941	8	1	7	-	-	5	-	1
Chelsea,	38,659	21	3	1	-	1	-	-	-
Salem,	38,316	15	4	2	-	1	-	-	-
Newton,	38,209	6	-	1	-	-	1	-	-
Haverhill,	38,095	10	1	1	2	-	-	-	1
Fitchburg,	33,636	11	2	4	3	1	-	-	-
Everett,	31,274	6	1	1	-	-	-	-	1
Taunton,	30,967	16	4	2	3	1	-	-	-
Quincy,	29,944	9	2	1	4	-	1	-	-
Waltham,	27,493	13	2	2	2	-	1	-	-
Pittsfield,	26,425	8	1	1	2	1	-	-	-
Gloucester,	26,011	11	1	2	3	-	1	-	-
Brookline,	25,003	6	1	-	-	-	-	-	-
North Adams,	22,150	7	2	-	-	-	-	-	-
Chicopee,	20,615	4	2	2	-	1	-	-	-
Northampton,	20,508	7	1	-	1	-	-	-	-
Medford,	20,294	5	-	1	1	1	-	-	-
Beverly,	15,794	7	-	1	1	-	-	-	1
Leominster,	15,139	5	-	-	-	-	-	-	-
Hyde Park,	15,050	3	1	-	2	-	-	-	-
Melrose,	14,867	10	1	1	3	1	-	-	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	5	-	-	-	1	-	-	-
Marlborough,	14,263	4	0	-	-	1	-	-	-
Westfield,	14,169	4	1	2	-	1	-	-	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	4	-	-	-	-	-	-	-
Attleborough,	13,294	0	-	-	-	-	-	-	-
Clinton,	13,105	7	3	-	-	-	-	-	-
Adams,	13,072	1	-	-	-	-	-	-	-
Gardner,	12,528	2	-	-	-	-	-	-	-
Milford,	12,409	3	-	-	-	-	-	-	-
Watertown,	11,946	4	0	1	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	7	1	-	-	1	-	-	-
Framingham,	11,648	5	1	-	-	1	-	-	-
Southbridge,	11,416	1	-	-	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,271,133	830	196	127	160	56	18	7	6
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WEEK ENDING DEC. 21, 1907.

CITIES AND TOWNS.	Population, Estimated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —						
				Principal Infectious Diseases.	Acute Lung Diseases.	Phthisis.	Diphtheria.	Typhoid Fever.	Measles.	
Boston,	609,761	283	71	31	69	16	1	1	1	—
Worcester,	132,240	57	13	19	6	3	3	1	1	1
Fall River,	106,123	46	29	10	5	3	—	—	—	—
Cambridge,	99,745	30	8	2	7	2	—	—	—	—
Lowell,	96,380	39	8	2	9	1	1	1	—	—
Lynn,	80,743	37	9	7	6	3	—	—	—	—
New Bedford,	79,744	34	13	5	6	3	—	—	—	—
Springfield,	78,707	35	7	5	6	3	—	—	—	—
Lawrence,	76,000	30	15	1	9	1	—	—	—	—
Somerville,	72,581	29	4	8	6	2	—	—	—	—
Holyoke,	51,730	17	8	4	1	1	—	—	—	—
Brockton,	51,289	7	1	—	9	—	—	—	—	—
Malden,	39,941	11	2	4	1	1	—	—	—	—
Chelsea,	38,659	15	2	2	—	—	—	—	—	—
Salem,	38,316	20	9	2	—	—	—	—	—	—
Newton,	38,209	10	—	1	3	1	—	—	—	—
Haverhill,	38,095	13	3	4	3	—	—	—	—	—
Fitchburg,	33,636	4	1	2	—	—	—	—	—	—
Everett,	31,274	9	—	3	—	—	—	—	—	—
Taunton,	30,967	17	3	—	4	—	—	—	—	—
Quincy,	29,944	12	3	1	4	1	—	—	—	—
Waltham,	27,493	6	2	1	1	1	—	—	—	—
Pittsfield,	26,425	7	0	1	—	—	—	—	—	—
Gloucester,	26,011	11	2	—	3	—	—	—	—	—
Brookline,	25,003	5	—	—	3	—	—	—	—	—
North Adams,	22,150	6	3	2	—	—	—	—	—	—
Chicopee,	20,615	8	7	2	2	—	—	—	—	—
Northampton,	20,508	8	—	1	1	2	—	—	—	—
Medford,	20,294	6	1	1	—	—	—	—	—	—
Beverly,	15,794	7	1	1	—	—	—	—	—	—
Leominster,	15,139	4	2	1	1	1	—	—	—	—
Hyde Park,	15,050	5	—	2	1	1	—	—	—	—
Melrose,	14,867	5	1	2	1	1	—	—	—	—
Newburyport,	14,755	—	—	—	—	—	—	—	—	—
Woburn,	14,462	5	0	1	—	—	—	—	—	—
Marlborough,	14,263	3	1	—	—	—	—	—	—	—
Westfield,	14,169	4	1	1	—	—	—	—	—	—
Peabody,	13,787	—	—	—	—	—	—	—	—	—
Revere,	13,697	6	2	—	3	—	—	—	—	—
Attleborough,	13,294	3	0	—	—	—	—	—	—	—
Clinton,	13,105	2	0	—	—	—	—	—	—	—
Adams,	13,072	4	4	—	—	—	—	—	—	—
Gardner,	12,528	—	—	—	—	—	—	—	—	—
Milford,	12,409	6	2	2	—	—	—	—	—	—
Watertown,	11,946	2	0	—	1	—	—	—	—	—
Plymouth,	11,796	—	—	—	3	—	—	—	—	—
Weymouth,	11,691	6	1	—	—	—	—	—	—	—
Framingham,	11,648	5	1	—	—	—	—	—	—	—
Southbridge,	11,416	2	—	—	1	—	—	—	—	—
Wakefield,	10,687	—	—	—	—	—	—	—	—	—
Webster,	10,549	—	—	—	—	—	—	—	—	—

Recapitulation.

Total of reporting towns, .	2,258,605	881	240	123	159	51	12	5	12
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WEEK ENDING DEC. 28, 1907.

CITIES AND TOWNS.	Population, Es- timated for 1907.	Reported Deaths in Each.	Deaths under Five Years.	DEATHS FROM —					
				Principal In- fectious Dis- eases.	Acute Lung Diseases.	Tuberculosis.	Diphtheria.	Typhoid Fever.	Measles.
Boston,	609,761	271	46	33	70	21	1	1	-
Worcester,	132,240	48	11	5	8	1	2	1	-
Fall River,	106,123	41	18	5	13	-	-	-	-
Cambridge,	99,745	39	8	8	8	8	-	-	-
Lowell,	96,380	26	6	3	4	1	-	-	-
Lynn,	80,743	31	9	2	-	1	1	-	-
New Bedford,	79,744	35	11	3	15	2	-	-	-
Springfield,	78,707	28	4	4	6	1	1	-	-
Lawrence,	76,000	25	-	3	3	1	-	-	-
Somerville,	72,581	29	11	7	4	2	2	-	-
Holyoke,	51,730	19	12	2	2	1	-	-	-
Brockton,	51,289	20	7	2	4	1	1	-	-
Malden,	39,941	7	-	7	-	-	2	-	4
Chelsea,	38,659	11	1	-	2	-	-	-	-
Salem,	38,316	16	5	-	-	-	-	-	-
Newton,	38,209	8	1	2	4	2	-	-	-
Haverhill,	38,095	10	2	3	5	1	-	-	-
Fitchburg,	33,636	12	1	-	3	-	-	-	-
Everett,	31,274	13	-	-	-	-	-	-	-
Taunton,	30,967	14	2	3	4	1	-	-	-
Quincy,	29,944	7	0	1	-	-	-	-	-
Waltham,	27,493	4	1	1	2	-	1	-	-
Pittsfield,	26,425	11	0	1	1	1	-	-	-
Gloucester,	26,011	11	2	-	-	-	-	-	-
Brookline,	25,003	13	-	-	3	-	-	-	-
North Adams,	22,150	8	3	-	-	-	-	-	-
Chicopee,	20,615	8	5	1	1	1	-	-	-
Northampton,	20,508	12	1	-	-	-	-	-	-
Medford,	20,294	8	1	-	3	-	-	-	-
Beverly,	15,794	8	1	-	5	-	-	-	-
Leominster,	15,139	3	1	-	-	-	-	-	-
Hyde Park,	15,050	11	0	2	1	1	-	-	-
Melrose,	14,867	4	0	1	2	-	-	1	-
Newburyport,	14,755	-	-	-	-	-	-	-	-
Woburn,	14,462	7	3	1	1	1	-	-	-
Marlborough,	14,263	4	0	1	1	1	-	-	-
Westfield,	14,169	5	-	3	-	2	-	1	-
Peabody,	13,787	-	-	-	-	-	-	-	-
Revere,	13,697	2	1	-	-	-	-	-	-
Attleborough,	13,294	1	0	-	-	-	-	-	-
Clinton,	13,105	4	1	-	-	-	-	-	-
Adams,	13,072	2	-	2	-	1	-	1	-
Gardner,	12,528	3	1	1	-	1	-	-	-
Milford,	12,409	9	1	4	-	2	1	-	-
Watertown,	11,946	12	1	1	-	-	-	-	-
Plymouth,	11,796	-	-	-	-	-	-	-	-
Weymouth,	11,691	7	0	-	-	-	-	-	-
Framingham,	11,648	6	2	-	1	-	-	-	-
Southbridge,	11,416	4	2	2	-	-	-	-	-
Wakefield,	10,687	-	-	-	-	-	-	-	-
Webster,	10,549	-	-	-	-	-	-	-	-

Recapitulation.

Total of reporting towns, . . .	2,271,133	877	182	114	183	55	11	5	4
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**WEEKLY RETURNS OF DEATHS FROM CERTAIN INFECTIOUS
DISEASES.**

DEATHS FROM INFECTIOUS DISEASES NOT SPECIFICALLY MENTIONED IN
ABOVE TABLES DURING THE WEEKS OF DEC. 7, 14, 21 AND 28, 1907.

DISEASE.	Place.	WEEK ENDING —			
		Dec. 7.	Dec. 14.	Dec. 21.	Dec. 28.
Cerebro-spinal meningitis,	Boston, Cambridge, Gloucester, Holyoke, Hyde Park, Lowell, Lynn, Milford, New Bedford, Salem, Worcester,	2 1 — — — — — 1 — — 2	2 — 1 2 — — 1 — — 1	4 — — — 1 — — 1 — —	2 — — — — 1 — 2 1 —
Erysipelas,	Boston, Lawrence, Medford, Springfield, Westfield,	— 1 1 — —	1 — — 1 —	1 — — — 1	3 — — — —
Whooping cough,	Fall River, Fitchburg, Southbridge, Taunton, Waltham,	— — — — —	— 1 — — 1	3 — — — —	— — 2 1 —
Scarlet fever,	Boston, Chicopee, Fall River, Holyoke, Hyde Park, Lawrence, Lynn, Malden, Medford, Somerville, Springfield, Westfield, Worcester,	— 1 1 1 1 — 1 — — — — 2	— — — — — — — 1 — — — 1	— 2 1 1 1 — — 3 1 — —	1 — — — 1 — — 1 — — — 1
Influenza,	Haverhill, Somerville, Watertown, Woburn,	— — — —	— 6 1 —	— 5 — 1	2 — 1 —

WEEKLY RETURNS OF CASES OF INFECTIOUS DISEASES.

CASES OF INFECTIOUS DISEASES REPORTED DURING THE WEEKS OF DEC.
7, 14, 21 AND 28, 1907.

[Under the provisions of section 52 of chapter 75 of the Revised Laws.]

	WEEK ENDING —			
	Dec. 7.	Dec. 14.	Dec. 21.	Dec. 28.
Diphtheria,	224	220	197	198
Measles,	163	214	218	341
Scarlet fever,	150	159	126	157
Typhoid fever,	37	25	18	20
Phthisis,	89	119	102	122
Cerebro-spinal meningitis,	4	5	9	3
Whooping cough,	5	14	16	2
Malaria,	—	—	—	—
Smallpox,	1	1	5	3
Varicella,	11	20	22	10
Erysipelas,	—	—	—	—
Tetanus,	—	1	—	—
Leprosy,	—	—	—	—
Rabies,	—	—	—	—

MONTHLY REPORT ON INSPECTION OF FOOD AND DRUGS.

The following summary presents the results of the examination of food and drugs made by the State Board of Health during the month of December, 1907:—

ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.	ARTICLES EXAMINED.	Number found to be of Good Quality.	Number adulterated or varying from the Legal Standard.	Total.
Butter,	4	1	5	Meat products:—			
Canned soup,	2	—	2	Mince meat,	3	—	3
Cider,	10	8	18	Sausages,	4	—	4
Cocoa,	2	—	2	Milk,	98	147	245
Cream,	1	—	1	Drugs,	75	34	109
Cream of tartar,	1	—	1	Pickles,	4	—	4
Jams and jellies,	2	1	3	Porter,	2	—	2
Maple syrup,	3	—	3	Spices,	5	1	6
Meat products:—				Table sauce,	1	—	1
Canned meat,	1	1	2	Wine,	1	—	1
Hamburg steak,	—	3	3	Total,	221	196	417
Head cheese,	1	—	1				
Lambs' tongues,	1	—	1				

The samples of drugs found to be adulterated were: alcohol, cera flava, linimentum camphoræ, liquor calcis, spiritus camphoræ, spiritus

frumenti, spiritus menthae piperitae, tinctura iodi and several proprietary medicines.

The cities and towns in which samples were collected were: Andover, Arlington, Braintree, Boston, Brockton, Cambridge, Chelsea, Danvers, Fitchburg, Gardner, Haverhill, Holyoke, Ipswich, Lawrence, Lowell, Lynn, Newton, Northampton, Norwood, Palmer, Plymouth, Quincy, Salem, Springfield, Wakefield, Waltham, Ware, Wayland, Watertown, Westfield and Worcester.

PROSECUTIONS FOR VIOLATIONS OF THE LAW RELATING TO FOOD AND DRUGS.

Thirty-five convictions were secured during the month of December, 1907, for selling adulterated food and drugs, as follows:—

No.	Name of Defendant.	Place.	Character of Article sold.
1	Hugh F. Broderick,	Ipswich,	Alcohol. ¹
2	Thomas J. Broderick,	Ipswich,	Alcohol
3	Wm. A. Chaplin,	Ipswich,	Alcohol. ¹
4	James P. Derby,	Fitchburg,	Alcohol. ¹
5	Wm. Mayes,	Ipswich,	Alcohol. ¹
6	Max Bratman,	Boston,	Borax.
7	Boyle Bros.,	Lowell,	Cider. ²
8	James O. Holt,	Arlington,	Cider. ²
9	Walter K. Hutchinson,	Arlington,	Cider. ²
10	James Smith,	Lowell,	Hamburg steak. ²
11	Elmer R. Abbott,	Danvers,	Maltine with coca wine.
12	Alard J. Payette,	Lowell,	Maltine with coca wine.
13	John Goodwin,	Lowell,	Maple syrup: 90 per cent. cane sugar.
14	Walter Andrews,	Dracut,	Milk (total solids, 11.55).
15	Frank L. Angell (H. P. Hood & Sons).	Charlestown,	Milk (total solids, 12.08).
16	Chas. E. Brown,	Gardner,	Milk (total solids, 11.00).
17	Earl H. Cushman,	Bridgewater,	Milk (total solids, 11.08). ³
18	Chas. D. Fales,	Westfield,	Milk (total solids, 11.89).
19	John Fowler,	Westfield,	Milk (total solids, 10.72). ³
20	Edw. O. Goodrich,	Melrose,	Milk (total solids, 11.62).
21	Joseph N. Manos,	Lowell,	Milk (total solids, 11.79).
22	Warren C. Pierce,	Bridgewater,	Milk (total solids, 10.64). ³
23	James Thistle,	Chelsea,	Milk (total solids, 11.84).
24	Philander C. Veazie,	Chelsea,	Milk (total solids, 11.34).
25	Philander C. Veazie,	Chelsea,	Milk (total solids, 10.64).
26	Philander C. Veazie,	Chelsea,	Milk (total solids, 11.65).
27	Philander C. Veazie,	Chelsea,	Milk (total solids, 11.69).
28	Ernest G. Kelley,	Lynn,	Standard Catarrh Powder.
29	Robt. J. Smythe,	Boston,	Spirits of camphor.
30	Francis P. Adams,	Boston,	Strawberry preserves. ²
31	Gregory McLeod,	Boston,	Strawberry and apple preserves. ²
32	John F. Hayer,	Fitchburg,	Tincture of iodine. ¹
33	Chas. G. Mullen,	Quincy,	Vinegar.
34	Azro W. Dows,	Lowell,	Wine of coca.
35	Albert E. Moors,	Lowell,	Yellow wax.

¹Appealed.

²Contained a preservative.

³Watered.

Fines imposed, \$660.

LIST OF ADULTERATED OR IMPROPERLY LABELED FOODS, ETC., FOR DECEMBER, 1907.

Number of Sample.	Character of Sample.	Name of Manufacturer, Wholesaler or Producer.	Results of Analyses.
6363	" Ontario Brand " condensed milk.	Wayne County Condensed Milk Company, Ontario, Ontario, N. Y.	Condensed skinned milk; fat in original milk, 1.22 per cent.
631 O	" Mayflower Brand " condensed milk.	Vermont Condensed Milk Company, Richmond, Vt.	Condensed skinned milk; fat in original milk, 2.5 per cent.
6212 M	Preserved cherries.	Libbey, McNeil & Libbey, Chicago	Preserved with benzole acid.
6937	" Lawson Pink " devilled ham.	Roger L. Sherman Company, Boston,	Preserved with a compound of boron.
427 O	Milk.	Nellie F. Laico, Melrose,	Total solids, 11.68 per cent.; contained added water.
491 O	Milk.	{ Jeremiah Doody, North Sangus,	Total solids, 10.80 per cent.; contained added water.
493 O	Milk.	{ John E. Anderson, Attleborough,	Total solids, 11.46 per cent.; contained added water.
541 O	Milk.	Seneca Cole, Attleborough,	Total solids, 11.07 per cent.; contained added water.
551 O	Milk.	Macdonald Bros., West Newbury, Mass.,	Total solids, 11.03 per cent.; contained added water.
6954	Milk.	William Leach, Gardner,	Total solids, 11.52 per cent.; contained added water.
6266 M	Milk.		Total solids, 10.77 per cent.; contained added water.
6817	Milk.		Total solids, 11.81 per cent.; fat, 2.90 per cent.; skinned milk.
6818	Milk.		Total solids, 11.84 per cent.; fat, 2.90 per cent.; skinned milk.
353 O	Milk.		Total solids, 11.60 per cent.; fat, 2.70 per cent.; skinned milk.
6058 M	Milk.	Philander C. Veazie, Chelston,	Total solids, 11.31 per cent.; fat, 2.40 per cent.; skinned milk.
6086 M	Milk.		Total solids, 10.64 per cent.; fat, 2 per cent.; skinned milk.
6904	Milk.		Total solids, 11.15 per cent.; fat, 2.70 per cent.; skinned milk.
6206 M	Tincture of Iodine.	Frank E. McNabb, Lowell,	72 per cent. of required strength.
595 O	Tincture of Iodine.	S. E. Ryder & Co., Waukefield,	85 per cent. of required strength.
339 O	Spirit of camphor.	Frank P. Moody, Lowell,	3 per cent. of required strength.
6910	Spirit of camphor. ¹	{ New York and Boston Drug Company, New York,	40 per cent. of required strength.
6911	Liquidum of camphor. ¹	{ A. E. Moore, Lowell,	40 per cent. of required strength.
6052 M	Beeswax.	Carlton & Hovey, Lowell,	Purafin
6136 M	Beeswax.		75 per cent. paraffin.
6908	Alcohol.	{ Con Kofoe, Boston,	{ 62.63 per cent. alcohol by volume.
6982	Alcohol.	{	{ 47.80 per cent. alcohol by volume.

¹ Guaranteed under the food and drugs act.

INSPECTION OF DAIRIES.

During the month of December, 1907, 157 dairies were examined in the following places:—

PLACE.	Number examined.	Number found to present no Objectionable Features.	Per Cent.	Number to which Letters were sent.	Per Cent.
Arlington,	1	—	—	1	100.00
Cambridge,	1	—	—	1	100.00
Carver,	5	4	80.00	1	20.00
Dudley,	30	20	66.67	10	33.33
Duxbury,	5	4	80.00	1	20.00
Groveland,	2	—	—	2	100.00
Kingston,	13	8	61.54	5	38.46
Monson,	14	6	42.86	8	57.14
Pembroke,	6	6	100.00	—	—
Plymouth,	45	20	44.44	25	55.56
Plympton,	14	6	42.86	8	57.14
Southbridge,	15	6	40.00	9	60.00
Sturbridge,	4	2	50.00	2	50.00
Wales,	2	—	—	2	100.00

Total number of dairies examined,	157
Number found to be free from objectionable conditions,	82
Number to which letters were sent,	75
Total number of conditions to which attention was called,	320
Percentage of dairies which passed inspection,	52.23

The names of the owners of the dairies found to be worthy of commendation follow:—

Carver.

Anthony, Michael.
Eames, E. H.

McHenry, Samuel.
Robbins, Horace C.

Dudley.

Alton, Herbert G.	Durkee, Mrs. Ella L.	Jacobs, C. A.
Arnold, E. W.	Easterbook Bros.	Mason, S. F.
Bateman, Charles.	Farley, Lawrence.	Thacher, Job.
Bates, Everett A.	Hall, George F.	Walker, Frank S.
Bisco, A.	Hall, S. F.	Wilding, Mrs. M.
Conant, Samuel.	Harwood, William H.	Williams, G. B.
Conant, Samuel M.	Haven, Erastus.	

Duxbury.

Bay Farm Co.
Hoyt, Frank.

Parker, J. K.
Simmons, E. W.

Kingston.

Adams, Horatio.
Ayer, Eugene.
Holmes, Miss Helen.

Holmes, Horace.
Holmes, Joseph A.
Keene, Francis.

Padelford, Enoch.
Reidenbach, S.

Monson.

Blanchard, Cady.
Burdick, A. H.

Miller, Lyman.
Noble, Mark.

Stebbins, Sherman.
Tucker, Wilson M.

Pembroke.

Ford, A. W.
Shepard, A. J.

Simmons, Mrs. Lucy.
Torrance, Nathan.

Trinity, S.
White, Lucius.

Plymouth.

Caswell, Rufus.
Cornish, Thomas.
Finney, J. H.
Fish, C. H.
Griffin, Joseph.
Harlow, Everett.
Hedges, Barney.

Holmes, Nathaniel.
Howland, Calvin.
Jordan, E. D.
Leach, George W.
Litchfield, C. I.
Madora, Manual.
Manter, Edward.

Montanari, Louis.
Murray, James.
Nichols, Albert.
Sampson, George^{N.}
Taylor (estate of), W. W.
Thomas, E.

Plympton.

Barnaby, S. H.
Churchill, D. E.

Dennett, F. W.
Hammond, Dr. W. P.

Lane (estate of), G. F.
Seymour, R. W.

Southbridge.

Cheney, Herman S.
Clements (estate of), George L.

Darling, Eugene.
Lyon, Otis F.

Roberts, B.
Welles, George.

Sturbridge.

Brown, B. S.

Williams, S. J.

**THE UNSUSPECTED BUT DANGEROUSLY TUBERCULOUS
COW.¹**

INTRODUCTION.

Tuberculosis is ordinarily a chronic, slowly progressive disease; consequently some time passes in most instances after a cow becomes affected before she begins to expel and scatter tubercle bacilli in a way dangerous to the health of other animals and persons. Precisely how much time

¹ E. C. Schroeder, M.D.V., Circular 118, Bureau of Animal Industry, United States Department of Agriculture. Issued Dec. 21, 1907.

thus passes cannot be determined with certainty, as it varies greatly with different animals, and is dependent upon individual peculiarities, the location of the disease in the body, the virulence of the infecting bacilli, and a number of unknown conditions. Practical experience indicates that the interval between infection and the dangerous expulsion and dissemination of tubercle bacilli is, with rare exceptions, sufficiently long for a herd to be kept entirely free from dangerously tuberculous animals, provided the tuberculin test is applied not less than once yearly, and all reacting animals are segregated and no animal is added until it has passed the test.

The tuberculin test for tuberculosis is almost universally accepted by veterinarians as a nearly infallible means of diagnosis, but it gives no satisfactory information about the extent to which reacting animals are affected. Microscopic examinations and inoculation tests of the secretions and discharges from a tuberculous animal often prove that it is actively expelling and scattering tubercle bacilli, and is therefore positively dangerous; but the contrary, that a tuberculous animal has not reached a dangerous stage, cannot be absolutely determined. For this reason, although we know that all cases of tuberculosis diagnosed with the aid of tuberculin are not at the time necessarily dangerous, and that some may not be dangerous until many months have passed, we are forced to assume for practical purposes that every tuberculous cow is dangerous from the moment she is known to be affected. We know that if she is not immediately dangerous she will rarely fail to become so, first intermittently, expelling tubercle bacilli occasionally, and then continuously, expelling and scattering them all the time in increasing numbers. Hence it should be clearly understood that the present state of our knowledge forces us to regard every tuberculous cow as dangerous, and that no distinction for practical application can be made between dangerously and not dangerously tuberculous cows.

WHAT IS A DANGEROUSLY TUBERCULOUS COW?

If we use the term "dangerously tuberculous" in the restricted sense, the following practical, important questions may be asked: What is a dangerously tuberculous cow? What is her appearance? How does she act, and what symptoms of disease does she show? What percentage of tuberculous cows in our dairy herds is dangerously tuberculous?

The first question has already been answered. The dangerously tuberculous cow from the provisional point of view is an animal that is expelling tubercle bacilli from her body, either with her milk, urine, faeces, saliva or otherwise, in such numbers and with such frequency that their presence can be certainly detected.

The examinations made at the experiment station show that the commonest way in which tubercle bacilli pass from the body of a tuberculous cow is with her faeces. Every case of tuberculosis examined that was found to be expelling tubercle bacilli in any way showed them in the faeces, and they were found in the faeces many times when they could not elsewhere be detected. From this it is reasonable to conclude that the greatest danger from tuberculous cows lies in the infectious character of the material that passes from their bowels. The significance of this fact is apparent when it is viewed in conjunction with the following paragraphs quoted from a bulletin recently published by the United States Public Health and Marine-Hospital Service: ¹—

In addition to being old and warm, much of the milk sold in Washington is dirty. Fifty-one of the 172 samples examined showed no visible deposit in the original container after several hours standing. Fifteen of the samples contained a very small amount of dirt, 98 contained a small amount of dirt, 8 contained much dirt, and 1 contained (mouse?) faeces.

This foreign matter (dirt) when examined under the microscope was found to consist of faecal matter, hair, epithelial and other cells, straw, bacteria, and all manner of extraneous substances that have no place in clean milk.

After several hours standing in the original containers, 121 of 172 samples, or 70 per cent., of the kind of milk that reaches the city consumer, showed a visible deposit of dirt, which was found on microscopic examination to be made up in part of faecal matter. This dirt is characterized in the report of the United States Public Health and Marine-Hospital Service as "fully as undesirable as pathogenic or disease-producing germs are dangerous." To this should be added that we are now in a position to say that the presence of cow faeces in milk, entirely apart from the impression it may make on the taste and appetite of the consumer, is *prima facie* evidence that the milk, when it is obtained from a tuberculous dairy herd, contains pathogenic bacteria. We will later return to this subject.

PHYSICAL APPEARANCE OF DANGEROUSLY TUBERCULOUS COWS.

The second and third questions may be answered together. The dangerously tuberculous cow, long after she has become dangerous, may continue to look and act like a healthy animal. She may show neither symptoms of disease nor discomfort; her appetite may be good, and she may conceive, calve and milk like an ordinary cow. Sometimes, not always, if we except long-standing cases of tuberculosis, she has a slight, infrequent, easily overlooked cough. If she is a member of a herd in

¹ Hygienic Laboratory, Bulletin 35, p. 71.

which the other animals are thin, then, too, she is thin; on the other hand, if she is a member of a sleek, fat herd, she may be the ~~leakiest~~ and fattest of the lot. As a rule, it is no exaggeration to say that visibly tuberculous cows have very probably been dangerously tuberculous for several years.

To illustrate more effectually the appearance of the dangerously tuberculous cow, the photographs of seven are given, of which it is definitely known that they are expelling tubercle bacilli. Six of the seven cows were removed directly from dairy herds, and their milk was being

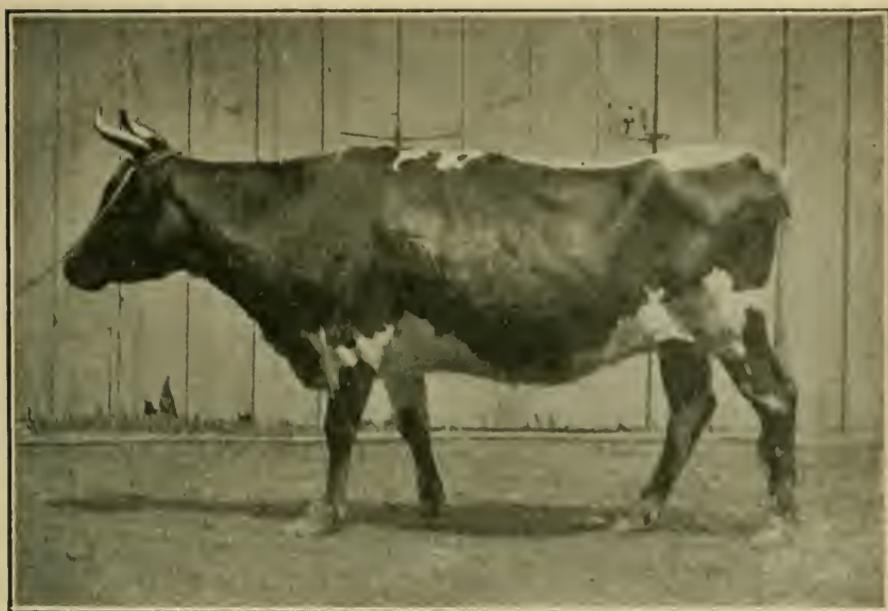


FIG. 1.—Cow No. 1, apparently in excellent health, but affected with tuberculosis for more than six years; many tubercle bacilli found in faeces. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

regularly distributed to customers in Washington, D. C. Cow No. 509, undoubtedly the most dangerous among them, is a quiet little animal, with many points to recommend her for private family service.

Cow No. 1 has been affected with tuberculosis more than six years. Microscopic examinations show that she is constantly passing tubercle bacilli with her faeces. The inoculation of guinea pigs with her faeces, also with milk slightly soiled with her faeces, and with butter made from milk slightly soiled with her faeces, caused them to become affected with typical generalized tuberculosis. The cow has been in the possession of the Bureau Experiment Station since June, 1895, and is now fully eighteen years old. Her health is apparently excellent and her appetite

good; she has no cough that would attract the attention of the casual observer. Even if she were not affected with tuberculosis, her present condition, as shown by the picture, would have to be regarded as very good for an animal of her age.¹

Cow No. 509 was tested with tuberculin in a dairy herd and found to be tuberculous about nine months ago. Directly after her removal from the herd, which was supplying milk to Washington, D. C., microscopic examinations showed the presence of tubercle bacilli in both her milk and faeces. In one quarter of her udder a small nodule about the size of

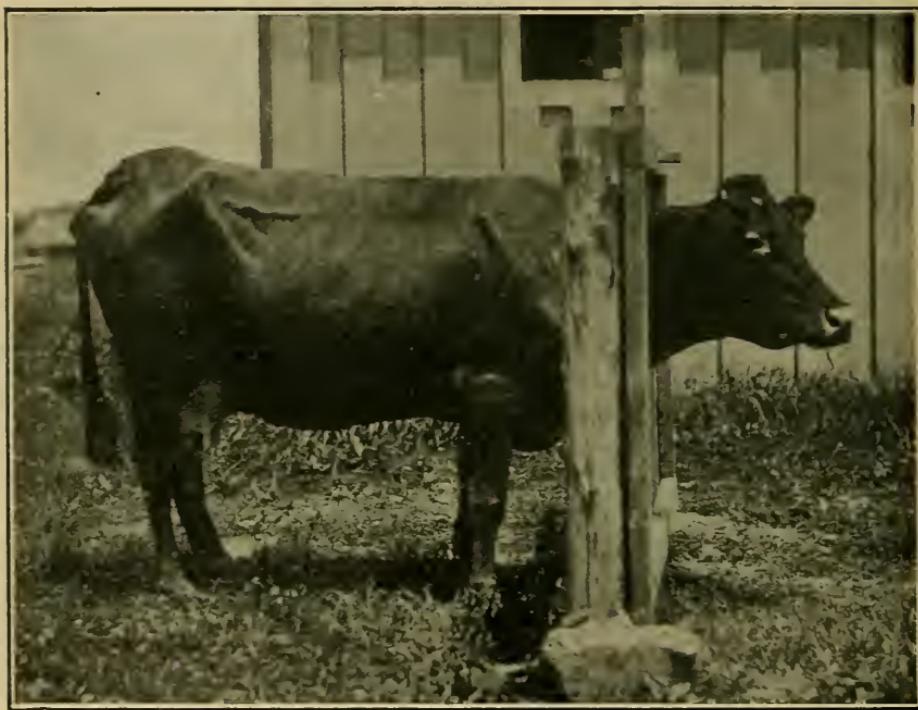


FIG. 2.—Cow No. 509, in good condition and showing no symptoms of disease, recently in a herd supplying milk to Washington; tubercle bacilli present in both milk and feces. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

a pea was found, the tuberculous character of which was not suspected until after she reached the Bureau Experiment Station. Guinea pigs inoculated with her milk and with butter made from her milk died affected with typical generalized tuberculosis. The butter made from her milk was ordinary salted butter, and in this the infection persisted

¹ Since the above was written, cow No. 1 died very suddenly. When she was stabled for the night she appeared to be in her usual condition, and ate the whole of her evening feed; the next morning she was found dead. The post-mortem examination showed lesions of generalized advanced tuberculosis.

with undiminished virulence for forty-nine days. Tests are being made to determine how much longer than the time named tubercle bacilli will retain their virulence in ordinary salted butter.

The cow is seemingly in better physical condition than most dairy cows. Her appetite is good, she has no cough, and shows no symptoms of disease or distress.

She calved about six months before the picture was taken. Her calf remained with her until it was weaned; it was killed at the age of five months, and found on post-mortem examination to be affected with gen-

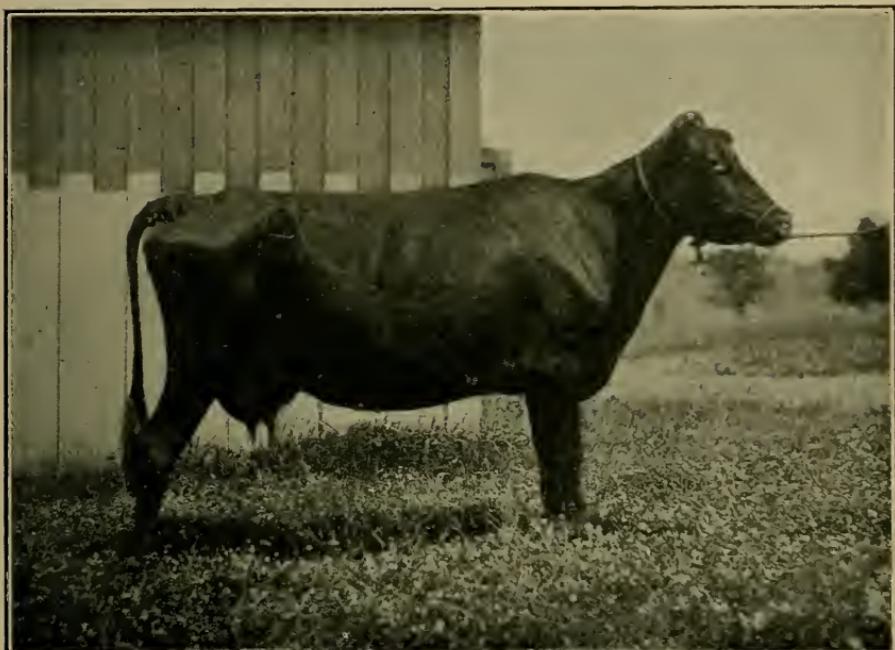


FIG. 3.—Cow No. 512, in good condition and showing no symptoms of disease; recently in a herd supplying milk to Washington; was scattering tubercle bacilli in a dangerous way. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

eralized tuberculosis. Four other calves, born of healthy cows, were also fed the milk of cow No. 509. One calf was fed one day, one three days, one seven days and one thirty days. The calves fed respectively one, three and seven days sucked the milk directly from the cow's udder, but were not allowed to be near her or to come in contact with tuberculous infection except at the time of feeding. The calf that was fed thirty days received the milk in a pail, and was never near tuberculous infection other than that contained in the milk. All four calves contracted tuberculosis.

Cow No. 512 was tested with tuberculin in a dairy herd and found to

be tuberculous eight months ago. Directly after her removal from the herd, which was supplying milk to Washington, D. C., microscopic examination showed that she was passing tubercle bacilli with her faeces. Her general condition is good, she has an excellent appetite, does not cough and does not show a single symptom of tuberculosis or other disease. Without a tuberculin test her tuberculous condition would not be suspected, and without the microscopic test of her faeces it would not be known that she is scattering tubercle bacilli in a dangerous way. She calved about three and one-half months before the picture was taken.



FIG. 4.—Cow No. 518, recently found affected with tuberculosis in a herd supplying milk to Washington; apparently healthy, but actually scattering tubercle bacilli. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

The record of cow No. 518 is identical with that of No. 512, with the exception that the tuberculin test which first demonstrated her tuberculous character was made one month later, and it is not known when she produced her last calf.

The record of cow No. 537 is identical with that of No. 512, excepting that the tuberculin test which first demonstrated her tuberculous character was made four months later, and it is not known when she produced her last calf.

Cow No. 552 was tested with tuberculin in a dairy herd about four months ago and found to be affected with tuberculosis. Directly after

her removal from the herd, which was supplying milk to Washington, D. C., microscopic examinations showed that she was passing tubercle bacilli with her fæces. Subcutaneous inoculation of guinea pigs with her fæces caused them to become affected with typical generalized tuberculosis. It is not known when she produced her last calf.

The significance of the inoculation of guinea pigs with her fæces must be judged in connection with the fact that the amount of fæces inoculated into each guinea pig is only a fraction of a grain. A cow of average size passes about 30 pounds of fæces each day, and the small amount

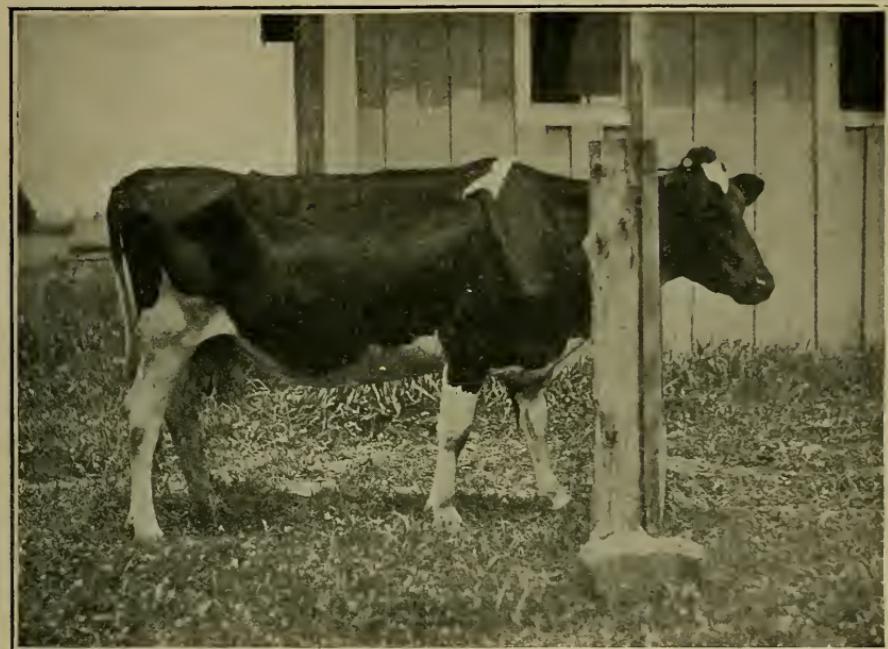


FIG. 5.—Cow No. 537, recently condemned as tuberculous in a herd supplying milk to Washington; though apparently in good health, she was passing tubercle bacilli. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

inoculated into a guinea pig to test for the presence of tubercle bacilli contains many other bacteria, some of which, when injected under the skin, cause inflammatory processes that prevent the actual entrance of tubercle bacilli into the tissues in a way to cause their absorption and the production of tuberculosis.

The cows shown in the illustrations, relative to breed and visible condition, are fairly representative of those usually seen in the better class of dairy herds from which the milk supply of cities is derived. Few better and many much worse looking cows are found in urban and suburban herds. The simple fact that a cow is thin does not condemn

her. Dairy cows are not fat animals. Before her milk flow begins, a cow is subjected to the drain that accompanies the production and delivery of a calf; and afterwards the feed she eats is converted into milk, rather than deposited in her body as fat. Cows that lay on much fat while they are milking are rarely economical for dairy purposes.

In addition to cow No. 1, another old cow remained under observation at the experiment station a long time. She died last spring, after she had reached the age of twenty-one years. Before her death it was



FIG. 6.—Cow No. 552, found in a herd whose milk was sold in Washington; apparently healthy, but in fact dangerously tuberculous. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

established that she was scattering tubercle bacilli both through the mouth and through the rectum; and pure cultures of these germs, isolated from the tuberculosis lesions of guinea pigs inoculated with saliva and faeces, are now growing in the Pathological Division of the Bureau of Animal Industry. The tuberculous condition of the old cow was known six years before she died, but, notwithstanding her great age, she retained the semblance of health up to the last year of her life, during which she failed rapidly, became very thin, and suffered with a severe cough.

To the six pictures previously given one more of a dangerously tuberculous cow is added. This last picture is presented to show that a dangerously tuberculous cow may actually be in prime, fat, beef condition.

This cow (No. 551) was tested with tuberculin in a dairy herd about four months before her picture was taken, and was found to be affected with tuberculosis. Microscopic examinations show that she is passing tubercle bacilli with her faeces. She is entirely too fat to be regarded as a good dairy cow, and shows no symptoms of disease or distress. A fairly large number among tuberculous cows of equally fine appearance examined post-mortem at the experiment station have been found to be affected with advanced and more or less generalized tuberculosis.

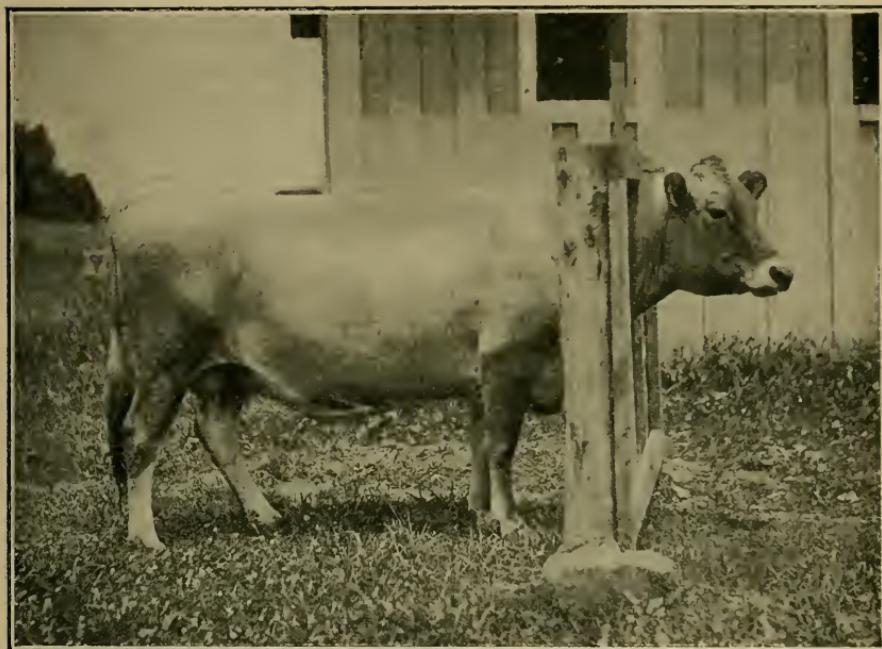


FIG. 7.—Cow No. 551, too fat for dairy purposes, and appearing to be perfectly healthy; found recently in a herd supplying milk to Washington; tubercle bacilli found in faeces. (Schroeder, Circular 118, Bureau of Animal Industry, United States Department of Agriculture.)

PERCENTAGE OF DANGEROUS COWS IN DAIRY HERDS.

We now come to the fourth question, which concerns the percentage of cows in dairy herds that are dangerously tuberculous among those found to be affected with tuberculosis through the application of the tuberculin test. It must be borne in mind constantly that the term "dangerously tuberculous" is used only for the sake of convenience, to designate those cows of which it can be shown beyond doubt that they are disseminating tubercle bacilli, not actually to separate the dangerously from the not dangerously tuberculous, which is impossible.

The number of cows examined to obtain an answer to the fourth question was not large; there were 24 which were removed directly from dairy herds, and 6 others which were known to have been affected with

tuberculosis three years or more. Among the former, 10, or a trifle over 40 per cent., were found to be expelling tubercle bacilli, and among the latter all were expelling them. Examinations of the same kind will be continued, and a report will probably be published later, when the results in a larger number of cases can be given.

The cows removed from dairy herds, notwithstanding their tuberculous condition, had the general appearance of ordinary dairy cows; and those regarding which it could be demonstrated that they were expelling tubercle bacilli appeared to be and acted fully as well as those regarding which this could not be demonstrated. Among the 24 cows, 12 were specially selected for another investigation, because a careful physical inspection indicated that they were in the early stages of the disease. From this we may conclude that the examination of a larger number of tuberculous dairy cows will tend to increase rather than reduce the percentage of those which are without doubt expelling tubercle bacilli; though it must be admitted that the physical inspection of tuberculous cows gives no reliable or satisfactory information about their condition, unless they are so badly diseased that no conscientious dairyman would continue to sell their milk.

From the 6 cows known to have been affected with tuberculosis for three years or longer, all of which were passing tubercle bacilli in a manner capable of actual proof, we may justly conclude that with possibly rare exceptions all tuberculous cows eventually become dangerous; and it is merely a question of time after a cow has contracted tuberculosis when she will begin to scatter tubercle bacilli.

The prevalence of tuberculosis among dairy cows has been estimated at all the way from 10 per cent. to 90 per cent. The one figure is certainly too low and the other too high. There are many herds that have never been tuberculous, some that have been cleaned of tuberculosis, and others in which every cow is affected. The best evidence we have of the common presence of tuberculosis among dairy cows is the claim made by some dairymen that a milk famine would result from the condemnation of all tuberculous cows for dairy purposes. The dairymen who make this claim evidently know what they are talking about; and, though we may assume that they make it rather with the intention to oppose a feared general application of the tuberculin test to dairy herds than to call attention to an extremely dangerous and objectionable condition, the claim is in truth a strong argument to prove how urgently vigorous action is needed to clean dairy herds of diseased animals.

DANGER FROM INFECTED MILK AND BUTTER.

We must now return to the significance of a sediment in milk. We have seen from the work of the United States Public Health and Marine-Hospital Service that among 172 samples of city milk examined, 121, or 70 per cent., contained a sediment after standing a few hours in the original containers, and that the sediment consisted in part of cow fæces. Tuberculosis is so common among dairy cattle that milk producers frequently assert, as before stated, that a milk famine would be one of the results if the tuberculin test were applied to all dairy cattle, and if all those reacting were condemned for dairy purposes. We know that it can be definitely shown that about 40 per cent. of all cows that react to the tuberculin test, though they still retain the appearance of health, are actively passing tubercle bacilli; we know that the commonest mode for tubercle bacilli to be expelled from the body of a tuberculous cow is with her fæces; and we know that it has been demonstrated that the bacilli contained in the fæces of tuberculous cows are alive and virulent. Add to this the two facts that butter made from milk soiled with the fæces of cow No. 1 produced tuberculosis on the inoculation of guinea pigs, and that the tuberculous infection contained in the butter made from the milk of cow No. 509 showed no diminution of virulence after forty-nine days, and it is hardly necessary to formulate the conclusion that tuberculosis among dairy cows is one of the greatest dangers to which public health is exposed, and that every effort should be made by those who have the welfare of humanity at heart to correct this great evil.

Doctors Herr and Beninde,¹ two German investigators, concluded from their work that skim milk, buttermilk, cream, butter and centrifuge slime or sediment obtained from infected milk contained tubercle bacilli, and that the most intensely infected of these substances are butter and centrifuge slime. Among 444 samples of butter tested by them and other investigators, 60, or over 13 per cent., were found to contain tubercle bacilli. Broërs² of Utrecht places the frequency with which the milk of his country contains tubercle bacilli at 10 per cent., and shows that they may be present in skim milk, cream, buttermilk and butter, and retain their virulence a long time. Brittlebank³ of England reports that the milk supplied to the city of Manchester, obtained from different counties, showed from 3 per cent. to 12 per cent. of the samples examined to be infected with tubercle bacilli. Dr. Albin Burkhardt,⁴ after the examination of 1,452 human cadavers, found that 91 per cent.

¹ *Zeitschrift für Hygiene, etc.*, Vol. 38, p. 180.

² *Zeitschrift für Tuberkulose, etc.*, Vol. X., No. 3.

³ *Experiment Station Record, Department of Agriculture*, Vol. XVIII., p. 581.

⁴ *Zeitschrift für Hygiene, etc.*, Vol. 53, No. 1.

showed lesions of tuberculosis, irrespective of the cause of death; Nägeli, from the examination of 500 cadavers, places the figure at 96 per cent.; and Schlenker, from 100, makes it 66 per cent. Other investigators have added the weight of their testimony to substantiate this amazing frequency with which persons are shown to be affected with tuberculosis. These autopsy revelations indicate that few human beings entirely escape tuberculosis, though the majority die of other diseases, and many are not conscious during their lives that they are affected. This is just what we should expect when we know that tubercle bacilli, concealed in butter, milk, cream and other dairy products, are systematically and regularly distributed in a way that insures their ingestion by persons wherever the sale of milk from tuberculous cows is permitted.

If the public were thoroughly informed of the dangers — among which tuberculosis is only one of many — to which it is exposed through the use of impure, dirty and infected milk, the demand for milk of approved purity would rise to the magnitude of a concerted national movement, and would sweep all objections and difficulties out of its way. Inform a man that a single one among many loaves of bread — you do not know which — is contaminated with arsenic, strychnine or some other commonly dreaded poison, and he will go very hungry before he risks eating any loaf of the lot. He knows what arsenic and strychnine are, and what he must expect from their introduction into his stomach. Yet he continues to use milk and dairy products, and permits his family to use them, without first testing their purity or insisting that the doubt about their purity shall be removed, notwithstanding that they have repeatedly been shown to contain poisons fully as objectionable and potent as those above named, such as the germs of tuberculosis, typhoid fever, scarlet fever, diphtheria and other diseases, and the poisons that are the cause for the high death rate from abdominal diseases among children who have not passed the milk-drinking period of life.

THE GREAT IMPORTANCE OF A PURE MILK SUPPLY.

There is an important moral side to the milk question which must not be ignored. We may have the right — a very doubtful right, to be exact — to neglect the dangers to which we, as adults capable of judging and acting for ourselves, are exposed; but we have absolutely no right to neglect the conditions that cause suffering and death among children. The failure to act and to act quickly and uneasiness until a safe milk for children, at least, is within easy reach of every mother, may be characterized as barbarous, if not criminal, indifference. It is an offence against the innocent, unquestioning confidence which children repose in their adult friends.

Under our present conditions of civilization the importance of milk is second only to that of air and water. Without milk thousands of children who grow to useful maturity would starve before they completed the first year of their lives. The excellent work done by Dr. George W. Goler of Rochester, N. Y., proved beyond doubt that thousands of lives are annually lost through the use of impure milk. The reform his praiseworthy and untiring energy brought about in Rochester, by no means a very large city, reduced the mortality among children under five years from 7,451 for the ten years ending in 1896 to 4,965 for the ten years ending in 1906. This shows a saving of 2,486 lives, among which 1,554, or 62.5 per cent., were children under one year old, — that is, had not passed the period of life during which milk forms the most important element of their daily food.

What can be done by substituting a pure milk supply for an impure one is shown by the following quotation from the New York Medical Record's London letter of July 26, 1907:¹ —

At Leeds a voluntary society established a year ago a depot for supplying a pure milk, as the corporation had no power to do so. But the health officer has made a report on the working. He concludes that, making allowance for the mortality for the first week of life and for those born moribund, there has been a saving of life of 25 per cent. among the children using the society's milk, as compared with those living in the same district at the same ages and during the same seasons fed otherwise. The experiment was on a small scale, but as far as it went was more successful than he could have anticipated.

The dairyman is not alone to blame for impure milk. As a rule, he attempts to supply a pure milk to his customers, and is not conscious of the impurities and infections in the article he is distributing. The price he receives is too low for the production of a constantly pure milk. He should be better paid. If the money that now goes to druggists, doctors, undertakers and burial grounds directly through the use of impure and unwholesome milk could be diverted to the dairyman, he would be amply paid for producing a wholesome, safe milk, and the entire community would profit by having better health, fewer deaths and less suffering.

CONCLUSIONS.

1. The dangerously tuberculous ewe is an animal that may long retain the appearance and general semblance of perfect health.
2. The methods we now have to detect the presence of tubercle bacilli in the secretions and discharges from tuberculous ewes are too crude

¹ New York Medical Record, Aug. 17, 1907, p. 275.

to give positive results unless the bacilli are quite numerous; hence, while we can frequently obtain direct evidence that a tuberculous cow is dangerous, the failure to obtain such evidence does not prove that a tuberculous cow is safe.

3. Among tuberculous dairy cows that retain the appearance of health and are not known to be affected until they are tested with tuberculin, 40 per cent. or more actively expel tubercle bacilli from their bodies in a way dangerous to the health of other animals and persons.

4. Dairy cows that have been affected with tuberculosis three years or more, with possibly rare exceptions, are active agents for the dissemination of tubercle bacilli.

5. The general evidence justifies the conclusion that tuberculous cows do not expel tubercle bacilli until some time after they contract the affection. The practical importance of this is, that it enables us to clean herds of tuberculous cattle by the periodic application of the tuberculin test and the segregation of all reacting animals.

6. The interval of time that elapses between infection with tuberculosis and the dangerous expulsion of tubercle bacilli cannot serve as a reason for retaining a tuberculous cow in a dairy herd after the fact that she is tuberculous has been determined. The duration of the interval after infection, before the expulsion of bacilli begins, varies greatly with different animals, and it is rarely possible to ascertain how long a cow has been affected when her tuberculous condition is first discovered.

7. From the present as well as from former¹ investigations we know that the commonest way for tubercle bacilli to pass from the bodies of tuberculous cows is with their faeces. This fact, together with the common presence of tuberculosis among dairy cows and the frequency with which cow faeces are found in the milk that reaches the consumer, is clear evidence that a considerable proportion of our dairy products are infected with tubercle bacilli.

8. The danger from the presence of tuberculosis among dairy cows is not confined to the use of milk as a beverage. When tubercle bacilli are present in milk they enter the various articles of diet prepared from it, and are specially numerous in butter, in which they may remain alive seven weeks or longer without showing a diminution of virulence.

9. The distribution of tubercle bacilli from tuberculous cattle in a way to endanger human health is not left to chance. It is a commercial, systematic distribution, from door to door, or rather from table to table. As long as the use of tuberculous dairy cows is permitted, the manner in which dairy products are distributed will insure that practically every member of the human family is exposed to tuberculosis.

¹ Bureau of Animal Industry, Bulletin 99.

This may explain why three European investigators, from their post-mortem examinations of respectively 1,452, 500 and 100 bodies of persons who died from various causes found that, among this total of 2,052 bodies, no less than 91 per cent. showed lesions of tuberculosis.

10. While the danger to which public health is exposed through the use of milk from tuberculous cows is of a magnitude almost beyond conception, it is unfortunately only one among many dangers to which persons are exposed through the use of impure, infected and dirty milk.

11. If the inclination of the general public does not drive it to correct the evils to which it is exposed through the use of impure, infected and dirty milk, it should bear in mind that common humanity imposes various sacred obligations, among which pure, wholesome milk for children ranks near to the first place. We have no right to shirk this obligation, and would have no inclination to shirk or ignore it if we took the time and trouble to investigate the number of deaths, especially among infants, directly due to contaminated milk. Most intelligent persons who read have some knowledge of the fact that numerous babies die from no other cause than the use of impure milk. Unfortunately, the frequency with which milk from tuberculous cows causes tuberculosis is not so clearly apparent, because of the insidious, chronic character of the affection.

12. Our dairy herds can be cleaned of tuberculous cows by the proper application of the tuberculin test and the segregation of all reacting animals. After years of observation the tuberculin test has been found to be a more nearly infallible means for diagnosing tuberculosis than any we have for diagnosing other diseases of men and animals.

OVERCROWDED DAIRY FARMS AND TUBERCULOSIS.¹

Overcrowded dairy farms and tuberculosis have not often been mentioned in the present milk agitation, but it is time to take up this side of the matter. It is an axiom of biology that in every species of living organism there is a maximum number of individuals which can exist on a given area. It is not necessarily limited by the food supply, but by self-poisonings and contagious diseases. Often the maximum is far less than the number which can find food. When food can be imported, as in the dairy farms, there is a constant temptation to overstock. The ground and buildings become infected, and the herds are ruined. The agriculturist grows better plants and makes more money by thinning out.

¹ Editorial, American Medicine, December, 1907, p. 668.

The coffee industry was ruined in the Philippines and Ceylon through diseases spread by crowding the tree, but success is following the opposite policy. Dairy farmers should learn this lesson, and perhaps we would then hear of fewer tuberculous herds.

Since it is a question of public health, perhaps it would be wise to determine what is overcrowding, and then regulate the matter by law. It is certainly a public menace to keep a large herd in a small field or small barn yard, constantly trampling in their own excreta, and filthy beyond words. To be sure, milk is very scarce now, and with the increasing density of city populations it may become a matter of extreme difficulty to supply it, unless from very long distances. Modern transportation and cold storage are rapidly reducing the necessity of bunching the milk cattle near cities. If the conditions demand overpopulated farms, then perhaps a solution may be found in a system of drainage and removal of excreta similar to the complicated plumbing of a city. As the expense may be prohibitive, the only course to pursue is to spread out the farms over great areas, to reduce overcrowding. Something must be done, for the diseases of the crowded herds are likely to become a serious matter.

The opposition of dairymen is the serious obstacle at present. In more than one part of the country they are combining to resist sanitary reforms demanded by health authorities, and in one place the president of the dairymen's association advised farmers to drive every sanitary inspector from their premises. This is a dreadful state of affairs, and it has suggested the plan of extending the authority of municipal health boards beyond city limits, as in the case of water supplies. In the case of milk sent from one State to another it has been suggested that the whole matter be placed under federal control, under the provisions of the pure food laws, as it is interstate commerce. It is merely another instance which shows that the consumers in self-protection must control the producers and dealers, who are causing sickness and death.

EXCLUSION OF VERMINOUS CHILDREN FROM SCHOOLS.¹

A question of considerable interest both to education authorities and the medical profession was raised in a case heard before the magistrates of the Stourbridge division on October 25 at the instance of the Worcestershire education authority. The question was whether, when a parent sends his child in such a condition that he or she brings into the school

¹ *The Lancet* (London), Nov. 9, 1907, p. 1342.

vermin, the school authorities have the right to refuse admission, and to treat the fact that the parent has not sent the child in a condition fit to be admitted as tantamount to a neglect to cause the child to attend. Several decided cases were referred to, not exactly covering the question in dispute, but where the principle of law was analogous.

In *Saunders v. Richardson* (7 Q. B. D. 388) it was held that a parent who, under an order by a court of summary jurisdiction that his child should attend a board school, caused the child to attend the school, but without the school fees, and without having applied to the guardians for payment of such fees or to the school board for a remission of them, was liable to be convicted under the elementary education act, 1876 (now repealed), for non-compliance with the order.

In *Taylor v. Timson* (20 Q. B. D. 671) it was held that there is no right on the part of a churchwarden forcibly to prevent an inhabitant of a parish or district from entering the church for the purpose of attending service, even though the churchwarden may be of opinion that he cannot be conveniently accommodated. The statute 5 and 6 Edw. VI., c. 1, § 2, having imposed a general duty to go to church, which is still binding upon members of the Church of England, has conferred a correlative general right to go to church on those who are so obliged to go.

In *Pidgeon v. Legge* (21 J. P. 743) the plaintiff, a chimney-sweep, went in his working dress into the bar of an ale-house where there were several persons taking refreshment. It was after working hours, and the defendant, the landlord, recommended him to go and change his clothes; and upon his refusal to leave after request, the defendant desired two police constables to put him out. The plaintiff offered resistance to the policemen, and when outside the door still struggled, and was thrown down on the street and his leg was broken. It was held that if the plaintiff was in his clothes and person in an unfit condition to be in a public house the defendant was justified in ordering the policemen to remove him, and was not responsible for the excess of violence which they used in carrying out his command.

In *Tomlinson v. Ashworth* (50 J. P. 164) it was held that the workman who is refused admission through failing to comply with the reasonable regulations of the works absents himself from his work.

It was also contended that the education act, 1902, § 17, requires the education authorities to "maintain and keep efficient all public elementary schools;" and that, unless they have power to refuse admission to children who are suffering from vermin, they could not maintain and keep the school efficient. Medical evidence was adduced before the magistrates showing the state of the child when admittance was refused, and that the parent had been twice warned as to the state of the child,

and required to cleanse her before such admittance was so refused. Further, that the parent's neglect to cleanse the child had caused the child unnecessary suffering and injury to health, and so the parent had thus failed in the performance of the duty imposed by the cruelty to children act, 1904. It was proved that the vermin would easily pass to other children and cause them discomfort, producing inattention to lessons, and possibly their withdrawal from school until their parents could properly cleanse them. The medical officer also stated that the absence of the child from school was not due to an unavoidable cause, as the vermin could easily have been removed in a few days if the parent had exercised proper care. It was proved that the child had been suffering from vermin for several months. The magistrates held that the managers were entitled to refuse admission to the child, having regard to her condition; and they fined the parent for neglecting to cause her to attend in such a condition that she would be so admitted.

SCHOOL CLINICS IN POPULOUS DISTRICTS.¹

Medical inspection of school children is now in force throughout England, and, though it will take a considerable time before the system will be working smoothly, it seems that a beginning is being made with a certain degree of enthusiasm. Of course, already the medical and lay journals are full of the views of faddists on the subject. It appears that there are some who believe that the rising generation of England should be fed, treated medically and educated wholly at the expense of the ratepayers. Others who do not go quite to these lengths are of the opinion that at least the medical treatment of school children is a duty of the State.

A very interesting address, treating of the matter from the point of view of a London County Council medical man, was given on November 28 by Dr. A. H. Hogarth, before the Childhood Society. The speaker pointed out that it is now universally recognized that medical inspection of schools forms an integral part of every modern system of education. As long as there are in schools children suffering from preventable and remediable diseases, of which both the parents and teachers are ignorant, so long systematic medical inspection can be justified as a State institution. But, Dr. Hogarth went on to say, medical inspection by itself is insufficient; medical treatment is the natural corollary. Experience,

¹ Editorial, Medical Record, Dec. 28, 1907, p. 1069.

however, in the populous districts of England has shown that less than one-third of the defective children discovered by inspection are actually treated. Many of the children are not even presented for treatment, while many others are not efficiently treated, or, at all events, are not materially benefited.

The diseases which call for treatment are parasitic and contagious affections, defective vision, carious teeth, chronic diseases of the eye, ear, throat and skin. The existing means for treatment are said to be wholly inadequate. There are family doctors, hospitals and poor law dispensaries, none of which really fulfils the requirements. The family doctor does not exist in the home of the poor, and even a little higher in the social scale it is unreasonable to expect him to prescribe for children with defective vision, or to cure such chronic complaints as discharging ears.

Again, hospitals are not suitable places for the treatment of such cases. That is not their *raison d'être*. The very weight of numbers is too great, the cases are too chronic and the treatment too tedious for voluntary workers. Moreover, the central hospitals are quite inaccessible for the people living in outlying districts, and many of the patients must be kept waiting an inordinate length of time. Ignorance, apathy and neglect of parents, inadequacy and inaccessibility of existing institutions, real poverty of the people, the tedious nature of efficient treatment for chronic cases and the general standing of the medical practitioner in poor districts are factors hindering treatment.

According to Dr. Hogarth, the only practical remedy lies in the establishment of school clinics or centers for the medical treatment of school children, under the guidance, direction and control of the education authority. The school clinic should be modeled partly on the special clinics for the treatment of teeth at Strasburg, Bâle, Lucerne and Zurich, and partly on the lines of the general polyclinics which have been established in Switzerland at Lucerne, La Chaux-de-Fonds and Neuchatel. The proposed clinic should consist of a small building of five or six rooms, a large waiting hall and dispensary, consulting rooms for physician and for dentist, a dark room with special apparatus for examining eyes, throats, ears, etc., and a room for dental and other minor operations. A trained nurse should be in charge, under the direction of the responsible medical officer of the education authority.

Such is a rough sketch of the proposed plan. The great obstacle to the consummation of this suggestion is the large primary cost; but it is argued that, if it will have the effect of checking the degeneracy so evident in English manufacturing and other populous districts, the expenditure will be a matter of secondary consideration.

**THE ORGANIZATION OF MEDICAL ASSISTANCE FOR
SCHOOLS IN A LARGE COUNTY.¹**

In view of the fact that medical inspection of schools is now imposed as a duty upon all education authorities, it is important to consider the problem of its organization in county areas, in which the difficulty of combining efficiency with economy is vastly greater than in compact urban districts. The subject was taken up by the Surrey education committee in 1905, when an education medical officer was appointed to organize the work in the county. At that time there was no immediate likelihood that medical inspection of schools would be made compulsory; it was, therefore, necessary to avoid arousing any latent public hostility to this new project, involving fresh expenditure, by recommending an extensive and costly scheme at the outset. The method adopted was rather to allow the work to grow gradually as the need for it became obvious, by taking up the most pressing subjects first, and by dealing with them as far as possible with the means nearest to hand.

Communicable diseases naturally called for immediate attention; the allied subject of school attendance certificates had also to be dealt with early; matters affecting the grants earned for school attendance are necessarily of primary importance. A system of regular and prompt notification by teachers and school attendance officers of every case of absence or exclusion by reason of any communicable disease whatever was instituted throughout the county in October, 1905, special directions being drawn up and forms provided for this purpose. After the adoption of this system it became possible to give approximately correct figures, showing the effects of communicable diseases upon school attendance in the county. It was found that 13 per cent. of the 60,000 children on the registers were excluded on account of such diseases, and that some 140,000 attendances were lost in the course of a year from this cause alone, excluding the effects of school closure and the more remote after-effects of the various infectious diseases. Arrangements were therefore made at once for securing the systematic co-operation of medical officers of health in the elementary schools, upon the lines indicated in the following report, submitted to the Education Committee in June, 1906:—

The particulars given in another part of the report with reference to communicable diseases are such as have not been available in a county area be-

¹ T. Henry Jones, M.A., M.D., D.P.H., Education Medical Officer, County of Surrey. Reprinted from Public Health, October, 1907.

fore, and they show very plainly the pressing importance of the subject. For one medical officer to cope with it is manifestly impossible. Some effort was made in this direction before the system of regular notification came into force, visits being paid, upon request, to affected schools; but even contagious diseases are so widespread that they cannot be adequately dealt with in this way, much less infectious diseases.

It became necessary, therefore, to organize at once some scheme for dealing with the whole subject, in order that the information now made available by the notifications might be put to immediate use. The sum of £150, sanctioned in the estimates for the purpose of medical assistance, affords the means for a tentative scheme.

It would be of the greatest advantage to attach to each school or small group of schools a doctor, residing near at hand, who should be able to examine any children submitted to him without delay. But in present circumstances this system is impracticable for the whole area of the county; its cost is found to be prohibitive.

The work involved is manifestly public health work, and its performance by doctors specially appointed to deal with schools would necessarily involve overlapping of functions and considerable expense. Medical officers of health have hitherto dealt fully with the notifiable infectious diseases, and to a limited extent with measles and whooping cough, in the schools; but not, as a rule, with such ailments as chickenpox, mumps and the contagious diseases, unless it were occasionally to apply closure for a serious outbreak of any of them. Though these latter ailments have no appreciable effect upon death rates, and are therefore not considered important from the point of view of sanitary authorities, their effect in the schools during one half-term has been shown with some exactness in the table given above, and they certainly come into the purview of preventive medicine. As there is a medical officer of health for every district, who is responsible for the prevention of disease, it is only reasonable to endeavor to secure his full co-operation in the schools. If this can be done for the whole area of a county, upon a comprehensive basis, it will provide for one important branch of medical supervision of schools, in the least costly way, by the use of the means nearest to hand.

With this object in view, I have recently made arrangements with twelve medical officers of health to undertake certain duties in connection with schools for the remainder of this financial year, as an experimental measure. The districts for which they act contain altogether 182 schools, of which the highest number in one medical officer's area is 51, and the lowest 4. It is advisable to make such an experiment on as large a scale as possible, in order that districts varying widely in their circumstances may be included. It is hoped that similar arrangements may be made for many of the schools still unprovided for, before the end of the present term.

The medical officers of health concerned agree:—

1. To visit each school in their districts at least once a year.
2. To pay as many visits as may be useful to any schools invaded by any communicable disease, and to take all necessary steps for dealing with out-

breaks. This refers to all infectious diseases, notifiable and non-notifiable, and to contagious diseases, which are to receive due attention.

3. To report upon any sanitary defects observed in the schools.

4. To examine any children referred to them for school attendance purposes. Only such children as school attendance committees or officers are doubtful about are to be submitted for examination, and their number is to be kept as low as possible; they are very few in most districts, being restricted practically to suspected malingerers. In order to minimize trouble, the names of any children needing examination will be sent to the medical officers concerned, who will fix their own time for holding the examinations at some school or other convenient place. In large districts a week may elapse before such examinations can take place; but they are not generally of an urgent nature, and it is hoped that the arrangements suggested will facilitate the work.

5. To make a short quarterly statistical return of the work done in the schools.

The number of school visits involved under this arrangement will naturally vary greatly, and can only be ascertained by direct experiment. A difficulty therefore arises in fixing a reasonable rate of remuneration. For the convenience of all parties concerned, this should be a stated yearly sum, and should cover all the duties specified above. This might be calculated either upon the number of schools in a district, or the average number of children in attendance. The medical officers of health have expressed their willingness to accept a nominal fee per school for the experimental period comprising the remainder of this financial year. The cost of the work for that period will be £95 11s.; and I beg to recommend the committee to authorize that expenditure, together with a further sum, calculated upon the same basis, for any other schools which may be included later in the same arrangement, the whole amount not to exceed the £150 set aside for the purpose in the year's estimate. I may point out that this sum will cover a great part of the cost of school attendance certificates, for which a separate estimate has hitherto been made.

If this experiment prove to be successful, it will provide for the urgent requirements of schools in connection with all communicable diseases, both infectious and contagious, and for the examination of a limited number of children for school attendance purposes. The education medical officer will then be enabled to devote more attention to the routine visitation of schools, the examination of children for mental and physical defects, and to the various other duties enumerated in the report of Oct. 16, 1905.

It may be well to draw attention to certain advantages and disadvantages of such a scheme. Among the advantages are:—

1. The medical officers of health will be brought into direct official relation with all the elementary schools in their districts, which will be to the benefit both of the public health and of the schools. The opportunity thus given for visiting schools and examining scholars will greatly facilitate any steps necessary for the prevention of infectious diseases, supplementing the early information furnished by the school notifications.

2. Any special measures required in the schools will be undertaken at once by the medical officers, *e.g.*, taking swabs for bacteriological examination in diphtheritic cases, and investigation of sanitary defects.

3. The subject of school closure will, it is hoped, be dealt with upon a more uniform system than is at present in force.

Among its disadvantages — and no scheme for dealing with such a subject on a large scale can be without them — are: —

1. Several large combined sanitary districts are under the supervision of single medical officers of health, who may find it difficult to visit the schools often enough. But an immediate visit to any district in which there is an outbreak of infectious disease is always required, and the school is generally concerned in such an outbreak. There is not quite so much urgency with regard to contagious diseases, and medical officers will probably find it possible to combine a visit to an affected school with some other necessary journey, within a few days of receiving notification of an outbreak.

2. Small sanitary districts are under the supervision of medical officers of health in private practice, and there are obvious drawbacks to the examination by them of children who may be the patients of other doctors. But such examination would only be for school purposes, and would have no concern whatever with treatment. The same difficulty exists in connection with general sanitary work in these districts, but does not prevent its efficient performance.

On the whole, it is hoped that the advantages may be found to outweigh the disadvantages.

The tentative scheme outlined in the above report was gradually extended, and now provides for all save 6 of the 262 schools under the control of the education committee, for dealing with which the co-operation of 19 medical officers of health has been secured. Complete uniformity of practice in all parts of the county is neither desirable nor possible, having regard to the widely varying conditions and requirements of the districts included in it. Matters of detail have, therefore, to be adjusted as occasion arises, and hitherto this has been done without difficulty.

In a later report, written in April, 1907, it is stated: —

In present conditions the advantages both to the schools and to the public health of employing medical officers of health for the purposes specified quite outweigh the disadvantages, having regard to efficiency and economy. In many districts it must be acknowledged that the medical officers have done far more work for the schools than could have been demanded or expected of them under the existing arrangement; even in districts whose conditions are unfavorable much useful work has been done. I would therefore recommend that the same arrangements be continued for the next financial year, at a total cost not exceeding £300.

If further duties, necessitating detailed physical examination of all children upon their admission to school, are to be imposed upon education authorities, it may become necessary later to modify the present system in order to meet increased requirements, which will also necessitate increased expenditure.

It must be pointed out that these extracts from official reports refer only to the methods adopted in Surrey for dealing with the purely public health side of medical inspection. The subject of the routine inspection of elementary schools for the physical examination of individual scholars, the special examination of blind, deaf, defective and epileptic children, and the general supervision of school premises, equipment and any other cognate matters affecting the health of scholars, has been dealt with separately, and is not referred to here.

NEW BRITISH LAW RELATING TO MEDICAL INSPECTION OF CHILDREN.

MEMORANDUM ON MEDICAL INSPECTION OF CHILDREN IN PUBLIC ELEMENTARY SCHOOLS, UNDER SECTION 13 OF THE EDUCATION (ADMINISTRATIVE PROVISIONS) ACT, 1907.

ANALYSIS.

SCOPE AND PURPOSE OF THE ACT. — 1. The aim of the new act. 2. The terms and effects of section 13. 3. Its scope.

ORGANIZATION. — 4. Respective duties of the Board and of education authorities. 5. The public health basis of the new duties. 6. The reasons for this basis. 7. Medical administration.

SUBSIDIARY AGENCIES. — 8. The teacher, school nurse and parent.

CHARACTER AND DEGREE OF MEDICAL INSPECTION. — 9. Principles of medical inspection. 10. Additional medical work. 11. Summary of points of inspection.

REGULATIONS. — 12. Number and period of medical inspections. 13. Sundry regulations.

AMELIORATION AND PHYSICAL IMPROVEMENT. — 14. Principles of ameliorative action. 18. Conclusion.

SCOPE AND PURPOSE OF THE ACT.

1. The education (administrative provisions) act, 1907, in so far as it concerns the medical inspection of school children, is the outcome of a steady movement of public opinion throughout the entire community. For some years past evidence has been accumulating that there exists in

certain classes of the English people a somewhat high degree of physical unfitness, which calls for amelioration and as far as possible for prevention. The Legislature resolved that to grapple effectively with this problem, or at least part of it, it was necessary first to improve the health conditions, both personal and in regard to environment, of the children of the nation. A consideration of the gravity of the need led to the conclusion that medical inspection of school children is not only reasonable but necessary, as a first practical step towards remedy. Without such inspection we not only lack data, but we fail to begin at the beginning in any measure of reform. The reasonableness of such inspection, if it is conducted on sensible lines leading to an improvement of the surroundings and physical life of the children, must become evident both to their parents and to the nation as a whole.

The Board desire, therefore, at the outset to emphasize that this new legislation aims not merely at a physical or anthropometric survey, or at a record of defects disclosed by medical inspection, but at the physical improvement, and, as a natural corollary, the mental and moral improvement, of coming generations. The broad requirements of a healthy life are comparatively few and elementary, but they are essential, and should not be regarded as applicable only to the case of the rich. In point of fact, if rightly administered, the new enactment is economical in the best sense of the word. Its justification is not to be measured in terms of money, but in the decrease of sickness and incapacity among children, and in the ultimate decrease of inefficiency and poverty in after life arising from physical disabilities.

2. The section of the education (administrative provisions) act, 1907, which concerns medical inspection of school children (section 13) is as follows:—

13.—(1) The powers and duties of a local education authority under Part III. of the education act, 1902, shall include:—

(a) Power to provide for children attending public elementary schools, vacation schools, vacation classes, play centres, etc.

(b) The duty to provide for the medical inspection of children immediately before or at the time of or as soon as possible after their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools:

Provided that in any exercise of powers under this section the local education authority may encourage and assist the establishment or continuance of voluntary agencies and associate with itself representatives of voluntary associations for the purpose.

(2) This section shall come into operation on the first day of January, nineteen hundred and eight.

From this it will be seen that two main provisions are incorporated in the section, namely, first, the duty, laid upon all local education authorities, of the medical inspection of children at a stated time and on such other occasions as the Board of Education may direct; and secondly, the power given to all local education authorities of making arrangements, to be sanctioned by the Board, for attending to the health and physical condition of the children in elementary schools.

3. Almost all local education authorities have taken steps of some kind in the promotion of school hygiene, and many have conducted some form of medical inspection. Hitherto, however, such inspection has been concerned only or chiefly with children selected from the school or class as being in some way obviously defective or diseased. The general routine, where such inspection has been practised, has been for a medical man to visit schools at intervals, make a sanitary survey of the buildings, and examine, more or less thoroughly, children presented to or selected by him. Such cases have, however, as a rule, been imperfectly followed up, and much of the advice given has been ignored or inappropriately applied. Much also has been left undone in the way of adapting the methods of teaching to the special physical needs of the children. Moreover, in many districts not only have serious defects of sanitation, such as bad lighting and lack of ventilation, injuriously affecting the children, been ignored, but even the means of preventing the extension of infectious diseases have been neglected in greater or less degree. The present act is not intended to supersede the powers which have long been exercised by sanitary authorities under various public health acts, but is meant to serve rather as an amplification and a natural development of previous legislation.

It is founded on a recognition of the close connection which exists between the physical and mental condition of the children and the whole process of education. It recognizes the importance of a satisfactory environment, physical and educational, and, by bringing into greater prominence the effect of environment upon the personality of the individual child, seeks to secure ultimately for every child, normal or defective, conditions of life compatible with that full and effective development of its organic functions, its special senses and its mental powers which constitute a true education.

Organization.

4. The respective functions of the Board of Education and the local education authorities are clearly defined by the act. The duties thrown upon the Board consist in advising local education authorities as to the manner in which they should carry out the provisions of the act, and in supervising the work they are called upon to undertake; in giving such directions as may be necessary regarding the frequency and method of inspection in particular areas; and in considering and sanctioning such arrangements for attending to the health and physical condition of the children as may be submitted to them by individual authorities. The Board will also collate the records and reports made by the authorities, and will present an annual report to Parliament.

The duty of carrying out the actual inspection has necessarily been entrusted by Parliament to the local education authorities, and not to the Board. Each authority must therefore in due course appoint such medical officers or additional medical assistance as may be required for the purpose. Some time must inevitably elapse before all authorities have their arrangements in working order, but it should be carefully borne in mind that, although the work is begun gradually, the initial organization established by each authority should admit of such expansion as will secure the thorough and efficient administration of the act. In subsequent paragraphs some general guidance is given as to the minimum amount of inspection required.

5. In view of the varied influences which affect, directly or indirectly, the health of the children of the nation, it is manifestly of the highest importance that the administration of this act should rest upon a broad basis of public health, and should not only secure for local education authorities as much freedom as is consistent with adequate uniformity in the presentation of results for comparative purposes, but should also use to the utmost extent the existing machinery of medical and sanitary administration, developing and supplementing it as required, rather than supplanting it by bringing into existence new agencies, partially redundant and possibly competing.

The Board view the entire subject of school hygiene not as a specialty or as a group of specialties existing by and of themselves, but as an integral factor in the health of the nation. The application of this principle requires that the work of medical inspection should be carried out in intimate conjunction with the public health authorities and under the direct supervision of the medical officer of health. The advantages of such unification of the public health services have already been recognized by the inter-departmental committee on medical inspection and the feed-

ing of school children, and also by the local government board, who specifically require every medical officer of health to report officially upon matters relating to the sanitary condition of all schools, including the "action taken (by the sanitary authority) in relation to the health of the scholars and for preventing the spread of infectious disease."

6. It is unnecessary to emphasize the objections to a dual jurisdiction in such matters as the sanitary control of school premises and the notification and prevention of the spread of infectious diseases, in which the duties of the medical officer of health and the school medical officer necessarily and obviously overlap. If they are to be effectively carried out, the interests and activities of the school medical officer must extend over the whole external environment of the child. School hygiene cannot be divorced from home hygiene, and this in turn is intimately bound up with the hygienic conditions of the community. Efficiency and economy require, therefore, an organic relationship between the daily work of the school authority and of the authority responsible for the administration of the wider branches of public health, including the supervision of water and milk supplies; food, housing and sanitation; inquiries into matters affecting infant mortality (including ante-natal influences); home visiting by men and women inspectors; sanitary and bacteriological investigations; the provision of hospital accommodation; disinfection; the cleansing of verminous persons; the notification of the prevalence or otherwise of diseases such as phthisis, affecting the adult population; and the consideration of social factors, such as the occupation of the parents, or the health, habits and physical conditions of the family,—all of which have a bearing, direct or indirect, upon the children's health.

Conversely, this organic relationship will provide increased opportunity and facilities for the medical officer of health to study all the conditions affecting the health of the community at all age-periods, and will bring him into closer touch with the personal hygiene of the population. While it is not expected that by establishing the necessary administration on the broad basis of public health all difficulties will be avoided, the Board are convinced that this is the only practicable method, and that which is most likely to promote economy, harmony and efficiency.

7. After careful consideration both of the present conditions of local sanitation, and of the developments most likely to serve the economical and efficient administration of this important branch of public work, the Board are of opinion that:—

(a) In county areas the County Council, which is the local education authority, should instruct their county medical officer, who will be responsible for smooth and effectual administration, to advise their education committee and to supervise the new work, its actual execution being

deputed wholly or partly to suitable medical colleagues or assistants (men or women), who either will be appointed specially for the purpose under him, or will be local medical officers of health, and to whom groups of schools may be allocated. Where no county medical officer has yet been appointed under the local government act, 1888, it would seem that the new duties in regard to medical inspection of children now imposed on the county council will render it inadvisable any longer to postpone such an appointment, since in no other way will the council be able effectually to secure adequate control, economy and efficiency in carrying out their new work, which must obviously be guided from the central county organization.

(b) In county boroughs the town council, which is at the same time both the local authority for public health, and also the local education authority, should instruct their medical officer of health to advise the education committee, and should make him responsible for the new work or for the supervision of such medical assistance as is needed to carry it out. Where appointments of school medical officers already exist, the Board do not suggest that they should be disturbed, provided always that the officers are competent and sufficient for the new duties, and that the arrangements for supervision by the medical officer of health are satisfactory.

(c) In non-county boroughs and urban districts which are local authorities for elementary education, the desirability of ultimately making similar arrangements, separately or in combination with contiguous districts, should be kept in view, though for the time being some variation may be requisite in accordance with local needs and circumstances.

That is to say, generally speaking, the work of inspection should be supervised by the medical officer of health of the authority which appoints the education committee; and when the work is obviously more than he can undertake unaided, it should be entrusted to one or more medical officers working under his supervision. In some districts it will be found convenient for such officers to be local medical officers of health holding office within the county; in others they may be registered medical practitioners specially appointed for this purpose. Provided that the principle of co-ordination of the medical services is secured in practice, and that the requisite personal and professional qualifications for the new work are present, it is clear that the functions of the school medical officer may be exercised by a medical officer of health, a poor law medical officer, a private practitioner, or, as occasion requires, a skilled specialist. When it is necessary to appoint officers for the purpose of the act, it is extremely important that persons of suitable qualifications and experience should be selected, even though they may not be called upon to give the

whole of their time to these duties; and it should be noted that there are many cases in which women are likely to be specially suitable. In making such appointments preference should be given to medical men and women who (1) have had adequate training in State medicine or hold a diploma in public health, (2) have had some definite experience of school hygiene and (3) have enjoyed special opportunities for the study of diseases in children. The particular needs and circumstances of the area or group of schools concerned should receive due consideration; and great care must be taken to see that school hygiene really forms an integral and fundamental part of the public health administration of the district, and is not subordinated to other less important sanitary questions.

All school medical officers, whether they are holding statutory office as medical officers of health in the area in which they are carrying out the new act or not, must obviously work in close co-operation with the sanitary authorities throughout the county, and must be kept informed as to the occurrence of notifiable diseases within their educational areas. This applies in a special degree to the county medical officer. It is imperative that the close interrelation between school hygiene and general hygiene, particularly that of the home of the child, should be secured and maintained.

Subsidiary Agencies.

S. The Board are convinced that the work of medical inspection cannot be properly accomplished by medical men without assistance. The teacher, the school nurse (where such exists) and the parents or guardians of the child must heartily co-operate with the school medical officer. In whatever way the system be organized, its success will depend, immediately and ultimately, upon the cordial sympathy and assistance of the teachers. Some authorities will find that the teachers are able to undertake, without undue strain, a share of the work of furnishing data respecting each child, and even perhaps to carry out some portion of the inspection; and it is clear that the successful application of the principles of hygiene to school life will depend almost entirely upon their efforts. What the mother is in the home, the teacher is in the school. Experience shows that when the teachers understand the necessities and opportunities of the situation, they are both willing and able to take their share. Their co-operation in the work already done in this direction has been beyond praise. The school nurse and health visitor are also important agents in school hygiene. They may serve as links between the school and the home, and can assist in recording the results of inspection, in securing and maintaining personal cleanliness, and in carrying out medical advice concerning simple complaints. They are also able to give counsel in the

home, to visit the children at home or in the school, and in many other ways to advance the cause of school hygiene. The Board are satisfied that this work offers a great field of valuable service for the school nurse, and they recommend that, wherever practicable, education authorities should secure, especially in rural districts, the benefit and true economy which may be thus obtained. It is essential, however, that the teacher, school nurse or health visitor assisting in the administration of this act should act strictly under the instruction and supervision of medical authority. Nor must the influence which the parent can exercise by example and precept be neglected. One of the objects of the new legislation is to stimulate a sense of duty in matters affecting health in the homes of the people, to enlist the best services and interest of the parents, and to educate their sense of responsibility for the personal hygiene of their children. The increased work undertaken by the State for the individual will mean that the parents have not to do less for themselves and their children, but more. It is in the home, in fact, that both the seed and the fruit of public health are to be found. All-round co-operation between school medical officer, teacher, nurse, health visitor and parent will prove both effective and economical; and the full utility of the act will not be secured unless, in advising local education authorities, the medical officer pays careful attention to considerations of expenditure and to the relative urgency of the reforms he proposes to undertake.

Character and Degree of Medical Inspection.

9. From what has been said it will be clear that the fundamental principle of section 13 of the new act is the medical examination and supervision not only of children known or suspected to be weakly or ailing, but of all children in the elementary schools, with a view to adapting and modifying the system of education to the needs and capacities of the child, securing the early detection of unsuspected defects, checking incipient maladies at their onset, and furnishing the facts which will guide education authorities in relation to physical and mental development during school life. It is evident that, although this work involves (a) medical inspection of school children at regular intervals, (b) the oversight of the sanitation of the school buildings, and (c) the prevention, as far as may be, of the spread of infectious and contagious diseases, including skin diseases, action in these three directions will be incomplete unless (d) the personal and home life of the child are also brought under systematic supervision. The home is the point at which health must be controlled ultimately.

The character and degree of medical inspection will depend on the standpoint from which the subject is viewed, the difficulty being of course

to attain a due sense of proportion and uniformity, particularly as to fundamental points. Valuable to science though the findings of a more thorough and elaborate medical examination might be, it is the broad, simple necessities of a healthy life which must be kept in view. It cannot be doubted that a large proportion of the common diseases and physical unfitness in this country can be substantially diminished by effective public health administration, combined with the teaching of hygiene and a realization by teachers, parents and children of its vital importance. The spread of communicable diseases must be checked: children's heads and bodies must be kept clean; the commoner and more obvious physical defects, at least, must be relieved, remedied or prevented; schoolrooms must be maintained in cleanly condition, and they must be properly lighted, well ventilated and not overcrowded; the training of the mental faculties must not be divorced from physical culture and personal hygiene. It is these primary requirements which must first receive attention.

10. The directions given in this circular as to the degree and frequency of inspection refer only to the minimum medical inspection, the effectiveness of which will in future be one of the elements to be considered in determining the efficiency of each school as a grant-aided school. They are not intended to exclude other medical work, which the Board trust will be undertaken by local education authorities according to their abilities and opportunities. For example, the re-testing of the eyesight of every child periodically would be most valuable; an annual measurement of height and weight; the more frequent examination of particular children, especially of those suspected to be suffering from deficient nutrition or found to be defective at former inspections; careful anthropometric surveys or special inspections at various ages of school life; and similar investigations of a special nature, undertaken in particular districts, come within the category of additional medical work wholly desirable where practicable, and calculated to advance school hygiene. Such work, however useful, should be looked upon as subsidiary to the main purpose of the act.

11. A consideration of these matters has led the Board to the conclusion that as far as practicable the statutory medical inspection should, at entrance or at subsequent inspection, take account of the following matters:—

- (1) Previous disease, including infectious diseases.
- (2) General condition and circumstances:—
 - (a) Height and weight.
 - (b) Nutrition (good, medium, bad).
 - (c) Cleanliness (including vermin of head or body).

- (d) Clothing (sufficiency, cleanliness and footgear).
- (3) Throat, nose and articulation (mouth-breathing, snoring, stammering, tonsillar and glandular conditions, adenoids).
- (4) External eye disease and vision testing.
- (5) Ear disease and deafness.
- (6) Teeth and oral sepsis.
- (7) Mental capacity (normal, backward, defective).
- (8) Present disease or defect: (a) deformities or paralyses; (b) rickets; (c) tuberculosis (glandular, pulmonary, osseous, or other forms); (d) diseases of skin and lymph glands; (e) disease of heart or lungs; (f) anaemia; (g) epilepsy; (h) chorea; (i) ruptures; (j) spinal disease; (k) any weakness or defect unfitting the child for ordinary school life or physical drill, or requiring either exemption from special branches of instruction or particular supervision.

It is unnecessary to discuss here the advisability or otherwise of including in a minimum inspection the various points appearing in this summary, or to add that commonly the findings as to organic defects will be of a negative character, the positive facts of the inspection being relatively few, and in part obtainable by the trained teacher or school nurse (see par. 15). Moreover, some of the above conditions will not require investigation in children on admission, when this takes place at or under five years of age. On the other hand, some defective children will require a more thorough examination than this minimum. Reasonable latitude must be allowed, and the summary must be taken only to indicate the points upon which the Board desire as much uniformity as possible in the minimum medical inspection, and must be adapted to the age period. The Board propose to issue at an early date an examination form suitable to this inspection.

Regulations.

12. The Board have decided under section 13 of the act that *not less than* three inspections during the school life of the child will be necessary to secure the results desired.¹ The first inspection should take place at the time of, or as soon as possible after, admission to school; the second at or about the third year (say, the seventh year of age); and the third at or about the sixth year of school life (say, the tenth year of age). A further inspection immediately before the departure of the child into working life would be desirable where practicable, and in some

¹ There will be special areas where the Board may from time to time require that the inspection should be at shorter intervals and of a more searching character, and also areas in which, owing to the largeness of size or population, some exception may have to be made in the early years by way of reduction of the burden per annum.

areas it may be best for this to take the place of the third inspection. Certain adjustments will be necessary in working out any standard in practice, as it will at once be evident that without such adjustment the first year (1908) would be unduly burdened with the inspection of the children newly admitted and of all the children already in school.

Provision should be made by each authority, when the act has been sufficiently long in operation to be in normal working, for the inspection in each year of (a) the children newly admitted; (b) the children in the school who in that year had matured for their second inspection; (c) those who had matured for their third inspection; and where practicable (d) those about to leave school might also be inspected. But in the first year (1908) it may prove impracticable to attempt more than the inspection of the children newly admitted and those leaving school; and in the second year (1909) the Board will be satisfied with the inspection of those newly admitted and those leaving, with the addition of children who have matured for their second inspection (which is perhaps the occasion of all others requiring the most thorough examination). Some such adjustment would tend to equalize the burden over successive years. It will be understood that the precise way in which the children are grouped in the school for medical inspection will vary according to the internal organization and circumstances of each school. It may be most convenient, for instance, to carry out the inspection on an age basis rather than on a basis of period of school life. In subsequent years the Board may issue notice modifying the age periods for inspection, in order to obtain facts respecting child physique at ages other than those included above.

The Board recommend that each local education authority should encourage one or both of the parents of the child to be present at the first inspection, and to this end a notification should be sent to the parents as to the time and place at which it will take place. Whilst some trouble may be involved in inviting the parents, the Board believe that substantial gains would thus be secured, for by this means misunderstandings will be avoided and prejudice will be disarmed. Moreover, the parent is able to facilitate examination and provide information, and the medical inspector's opinion could be given clearly and directly to the persons most nearly concerned.

13. The following further regulations should be observed:—

(a) The inspection should be conducted in school hours and on school premises, and in such a way as to interfere as little as may be with school work. The examination of each child need not, as a rule, occupy more than a few minutes.

(b) The convenience of the teaching staff and the circumstances of

each school must receive consideration, and in these matters and in the actual examination the medical officer will no doubt exercise sympathy and tact, giving due thought to the personal susceptibilities of those concerned.

(c) The facts revealed by inspection must be entered in a register kept at the school, the confidential nature of many of the entries being carefully respected. A copy of the entries should be transmitted with the child to any other school to which he or she may go.

(d) Every school medical officer should make an annual report to the local education authority on the schools and children under his superintendence, which should be printed for facility of reference, and in order that a supply of copies may be available for distribution among the members of the authority and other persons interested. The authority should send two copies of the report to the Board of Education as soon as possible after the end of the year under review.

(e) In order to secure effective bases for comparison of the work done in different parts of the country, one uniform year must be taken, the year to be adopted being in all cases the calendar year, in order to correspond with the annual period fixed for the closely related report of the medical officer of health.

(f) The report should be concerned chiefly with the conditions and circumstances affecting the health of the children in the elementary schools of the district.

(g) It should also contain statistical records of the number of children examined and of those re-examined or under medical supervision; the nature and results of the examination; the number of visits paid to classes; the number and character of the diseased conditions found at certain age periods; particulars as to blind, deaf, defective and epileptic children; the medical advice given both as to the prevention of conditions inimical to health and the remedy of diseased conditions that may be discovered, action taken, and so forth.

(h) In addition to such records, it will be well, as far as practicable, to make systematic comparisons of the individual and collective measurements and characteristics of the children in each school with standard and local records, both as a means of determining the condition of health of particular children or classes, for guidance in future action, and as part of the anthropometric survey to which this act should contribute in due time. This part of the work, however, must be kept in a secondary position while so much remains to be done in the elementary essentials of school hygiene. It is to those essentials, and the manner and degree in which they have been dealt with in his district, that each school medical officer should devote the major portion of his report.

AMELIORATION AND PHYSICAL IMPROVEMENT.

14. The aim of the act is practical, and it is important that local education authorities should keep in view the desirability of ultimately formulating and submitting to the Board, for their approval under section 13 (1) (b) of the act, schemes for the amelioration of the evils revealed by medical inspection, including, in centres where it appears desirable, the establishment of school surgeries or clinics such as exist in some cities of Europe, for further medical examinations or the specialized treatment of ringworm, dental caries or diseases of the eye, the ear or the skin. It is clear that to point out the presence of uncleanliness, defect or disease does not absolve an authority from the consequent duty of so applying its statutory powers as to secure their amelioration, and to prevent, as far as possible, their future recurrence or development. The subject of specific medical treatment is, however, one which will require subsequent consideration in the light of the findings of medical inspection and the collateral issues raised thereby; and it is clear that, speaking generally, and subject to the observations in the following paragraphs, local education authorities will be unable to formulate and submit for the Board's sanction any comprehensive scheme for the furtherance of this object until they have considered the results of their medical inspection in various directions.

15. In the mean time, the authorities should take measures without delay for dealing, through such agencies as are conveniently available, with what are commonly, though in a sense erroneously, regarded as minor ailments. To such ailments measures of amelioration should immediately be applied. In a broad sense, all such amelioration is "treatment." Indeed, properly administered, the act must become something more than a mere record of disabilities and defects. It opens the way to new means of education, and lays upon education committees duties involving "treatment" in a broad conception of the term. A few instances will make the matter clear. Thus, in controlling ringworm it has been open to a committee (a) to neglect the disease altogether; (b) to adopt a policy of exclusion from school of affected children; or (c) to supervise or carry out some method of amelioration. Up to the present many authorities have followed the first course. It is intended that in future they should, according to their abilities, adopt the third. Verminous heads and bodies form another illustration of a common condition in which amelioration can be secured by school nurses. Further, a careful survey should be taken of all available facilities for the promotion of the bodily cleanliness of school children. Wherever such facilities exist, they should be utilized to the utmost: and where they

are absent, the desirability, particularly in the more congested areas, of providing them, either in the schools themselves or at convenient centres, should be clearly recognized. It is of the utmost importance to remember that baths, with the necessary accompaniments of soap, sponges, towels, etc., should be utilized, not merely for the immediate and obvious purpose of cleansing the bodies of the children, but also as a humanizing influence, and as the means of inducing habits and instincts of cleanliness and of inculcating practical lessons in the value of personal hygiene and in self-respect. The same is true of such other simple practical matters as the daily brushing and cleansing of the teeth, which is a subject well worth careful treatment in many of our elementary schools.

16. Practical amelioration is already undertaken by local education authorities in checking the spread of infectious disease by exclusion of affected or susceptible children, supervision and medical examination of "contacts," disinfection of schoolrooms, and so on. Again, the modification of the teaching and work of the school and its adjustment to the physical capacity of the scholars is a form of "treatment" which, in the end, will bear much fruit. Thus, the defective visual acuity of children, particularly young children, calls for early correction at the instance of the education authorities, either alone or in conjunction with some voluntary society; but the rational treatment of some of these children will as a rule be an educational modification, which avoids the necessity of spectacles; such modification, for example, as will diminish the prevalence of the bad habit of working the eyes at near distance, or ensure the adoption of suitable type of letterpress for the reader's eyes. Antecedent even to the discovery of such visual defects should come the removal, as the result of medical inspection, of unsatisfactory conditions of school life which are a common cause of fatigue and of injured eyesight. Obviously, such remedies are of greater importance to the eventual health of the community than the specific medical treatment of individuals.

17. Lastly, it must not be forgotten that Parliament itself has recognized the necessity of imposing some share of responsibility upon education authorities as to treatment in the broader sense in which the term is being used in this paragraph, by the special legislation provided in the elementary education (blind and deaf) act, 1893, and the elementary education (defective and epileptic) act, 1899. The powers conferred by these acts are wide, and furnish authorities with the means of placing needy cases under special treatment. The Board of Education have approved in various county boroughs arrangements under the last-named act, and in other districts the subject is receiving attention. Nor must it be forgotten that in respect of defective nutrition considerable

powers have been conferred on local education authorities under the education (provision of meals) act, 1906. In all questions relating to the practicable means of amelioration, and in some even affecting the arrangements for medical inspection, the Board are satisfied that the efficient local administration of the act will depend in no small measure upon the good offices of school managers, many of whom have already done so much in this sphere, and to whose interest and sympathy they cordially commend the new work.

18. This circular is of a preliminary nature only, and concerns almost entirely the work of the new act at its initiation. The Board recognize the importance of steady progress in these matters, and have at present under consideration the practicability of the further adaptation of educational methods to the physical and mental capacities of the normal and abnormal child, of special anthropometric and analogous investigations, and of improving the methods of dealing with infectious diseases in schools. Such questions as school ventilation, the curricula of infant departments, the training of crippled, feeble-minded, blind, deaf or mentally deficient and epileptic children, special schools for other types of afflicted children, physical culture for pupil-teachers, the standard of medical examination for pupil-teachers, for training college students, and for teachers, and other kindred subjects, are also receiving their careful attention. Further, the Board are urging the necessity of giving special instruction in the principles of hygiene to all students in every type of training college, so that they may be able to deal profitably with this subject in the schools. To deal rightly and effectually with these matters will take time. The Board are desirous that the administrative machinery necessary for the appropriate working out, in various localities, of these and allied questions shall be the outcome of real organic growth, rather than of a hasty attempt to impose one mechanical system upon all districts, irrespective of their requirements or resources. And in all steps taken the progressive unification of the medical services and the needs and circumstances of each community must continually be borne in mind.

ROBERT L. MORANT

BOARD OF EDUCATION, WHITEHALL, LONDON, S.W., Nov. 22, 1907.

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